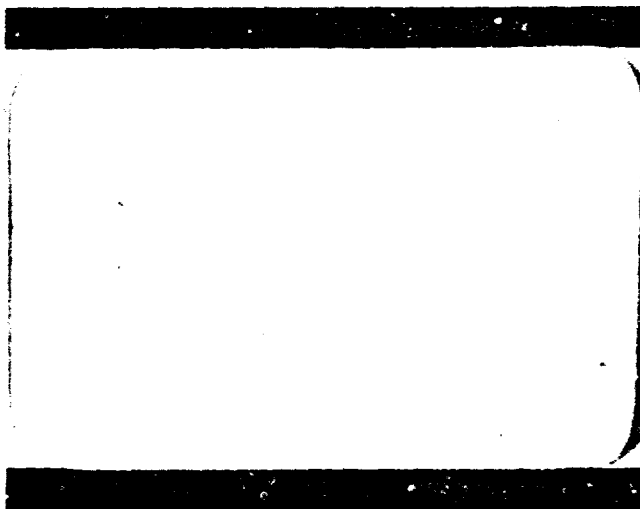


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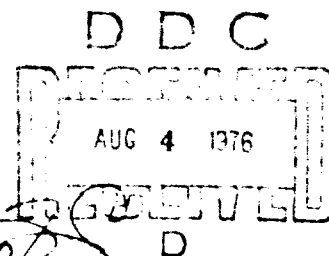
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AUTOPILOT SYSTEM
AIRBORNE
DIFFICULTIES REVIEW

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¹² 585p.

⁶ DIFFICULTIES REVIEW ATLAS ROOSTER
AIRBORNE AND GROUND SUPPORT SYSTEMS.

BOOK II.

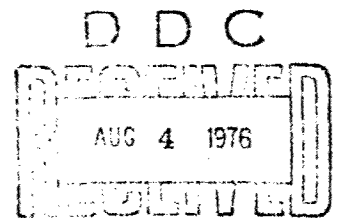
GENERAL INFORMATION.

Volume III.

Autopilot System Airborne Difficulties
Review.

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BOOK II - DIFFICULTIES REVIEW - AIRBORNE CONTAINS THE FOLLOWING VOLUMES

VOLUME I	AIRFRAMES
*VOLUME II	ABORT SENSING AND IMPLEMENTATION SYSTEM
VOLUME III	AUTOPILOT
*VOLUME IV	AUXILIARY POWER SOURCE
VOLUME V	ELECTRICAL
*VOLUME VI	GUIDANCE
VOLUME VII	HYDRAULICS
VOLUME VIII	INSTRUMENTATION
VOLUME IX	PNEUMATICS
VOLUME X	PROPELLANT UTILIZATION
VOLUME XI	PROPULSION INTERFACE
VOLUME XII	PROPULSION
VOLUME XIII	RANGE SAFETY COMMAND

*VOLUMES II, IV AND VI UNDER ONE COVER.

GENERAL INFORMATION

The Difficulties Review encompasses problems gathered from the factory, the field, (ETR and WTR) and UTP. The factory difficulties are limited to "selloff" and rerun composite testing.

In the UTP area, the difficulties were excerpted from Central Test Control Reports, Problem Reports, Supplementary History Sheets and Problem Review Reports.

Field problems for the Difficulties Review have been limited to captive flights, flight readiness firings, actual countdown dual propellant loading, quad tanking, component reliability testing, and flight acceptance composite tests. Difficulties called out in the search for critical weakness program was not documented.

GSE problems shall be limited to ETR Complex 12, 13, 36A and 36B for the present edition. Hereafter only booster difficulties shall be maintained.

Failure analysis reports cover difficulties from the field and factory and may complement the information above.

The GSE Difficulties Review, Book 1 contains 14 Volumes, one volume for each system, under one cover. Each volume is appropriately indexed.

The Airborne Difficulties Review, Book 2 contains 13 volumes. Each volume is under separate cover except Volumes II, IV and VI. Volumes II, IV, and VI are under one cover because of the limited material contained in each volume. All volumes are appropriately indexed.

A guide to facilitate interpretation of data in the Difficulties Review (GSE and Airborne) is part of each book or volume.

DIFFICULTIES REVIEW AUTOPILOT SYSTEM - A/B

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GENERAL DYNAMICS

Convair Division

Subject: Explanatory Information For Use of Difficulties Review (DR)
Data Tab Runs

This information has been prepared to facilitate use of the DR. It is not intended to describe how the DR was prepared nor the scope of the existing effort.

The Difficulties Review (DR) is presented on a form compatible with automated data processing and printout.

Appearing at the top of the page (outside of blocked-in areas) is the identification of the system and whether it is Airborne or Ground Support Equipment. Appearing with this identification is the date of the document and the page number.

On the right hand side outside of the blocked area, appears the abstract number. An abstract number is assigned to each item of the Difficulty Review to facilitate traceability to the original input document.

Appearing under the major identification are blocks wherein the information on component or system difficulty is identified and explained. Attached are samples of pages coded for reference to the following definitions and explanations:

CODE

EXPLANATION

①

This group of blocks callout system, subsystem, test/report number, failed component name, difficulty (Dif) data source, and GDC part number if applicable. Also called out here is the vehicle number, if applicable, and the date of difficulty.

In the same row, the site location, and in case of a flight, captive flight, or countdown, the time will be entered.

The block containing PRI and OTH refer to whether or not the failure is primary or a secondary failure. A secondary failure is to be interpreted as caused by another discrepancy.

The last block in this row is obvious and requires no further explanation:

②

Refers to a major system of the launch vehicle.

③

Refers to subsystem of a major vehicle system if applicable, (Booster, sustainer, etc).

GENERAL DYNAMICS

Convair Division

<u>CODE</u>	<u>EXPLANATION</u>
(4)	Is a report number as opposed to type of report, (UTP, Countdown, Flight, FAR, etc.).
(5)	Is a type of report, such as a FAR, UTP, FRF, etc.
(6)	Refers to a component part by name.
(7)	Is a component piece part of the component and referred to by name, (plug, seal, wiring, diode, etc., only where applicable).
(8)	Is a GDC part number, if applicable.
(9)	Refers to a site or location at time of discrepancy on the component or vehicle system.
(10)	Is the vehicle on which discrepancy occurred. Vehicle number listed only if unit was installed on a vehicle at time of discrepancy.
(11)	Is the vendor part number, if applicable.
(12)	Is the vendor name, if applicable.
(13)	Is the failure caused by other component or other system. This item defines the failure as secondary or not secondary.
(14)	<p>Refers to the primary failure. If item is labeled <u>no</u>, then item (13) may appear as a <u>yes</u>.</p> <p>Should item (13) appear as a <u>yes</u>, then an abstract will have been written to identify the cause of failure effecting the component referred to in the Difficulty Review, Item 6. It should be noted that a multiple failure may be recorded in these blocks, (yes/yes), or if a failure did not occur, (no/no).</p>
(15)	Defines the failure mode, and if identifiable, the cause is called out. A careful review of the failure mode is made to determine effect on system operation and vehicle effort.

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CODE

EXPLANATION

16

Defines the system effect. This effect is the result of the failure mode assigned to the component.

17

Defines the vehicle effect. This effect is a result of the failure mode and the result of the system effect.

It should be noted that corrective action may be taken whether or not the failure was confirmed.

18

Lists the corrective action. Taken by GDC, the vendor, or both.

17 FEB 1988

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GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-HYDRAULIC SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRE 10TH	LEADOR NAME VENOR PART NO
HYDRAULIC-A/B BOOSTER	27A397 HYDRAULIC PUMP	UTP-PRT 27-00866-1	841280	CONVAIR	YES	VICKERS MO AA-00866-R-2A
CORRECTIVE ACTION-DEPT 141-2 TO PERFORM RETEST ON TWO (2) ADDITIONAL UNITS FROM LOT 13, TO DETERMINE LOT ACCEPTABILITY ITV AND PROVIDE COMPARISON DATE.						
HYDRAULIC-A/B BOOSTER	SLV-89-10-239-F BOOSTER HYDRAULIC PUMP/SEAL	PAR 27-00866-1	7126 841003	FACTORY	YES	VICKERS MO AA-00866-R-2A
CORRECTIVE ACTION-SUBMIT ECP 768 TO REVISE TEST REQUIREMENTS TO PRACTICAL LEVELS.						
HYDRAULIC-A/B BOOSTER	SLV-89-10-239-F BOOSTER HYDRAULIC PUMP/SEAL	PAR 27-00866-1	7126 841003	FACTORY	YES	VICKERS MO AA-00866-R-2A
FAILURE MODE-LEAK-EXTERNAL-CONTINUOUS OIL SEEPAGE WAS OBSERVED DURING CHECKOUT. CAUSED BY DEFECTIVE SEAL AT PUMP VE ANIC PRESSURE SENSING PORT.						
CORRECTIVE ACTION-VENDOR REVIEWED STOCK OF O-RINGS AND INFORMED THEIR PERSONNEL OF CORRECT SEAL INSTALLATION PROCES URES.						
HYDRAULIC-A/B BOOSTER	SLV-89-10-239-F BOOSTER HYDRAULIC PUMP/SEAL	PAR 27-00866-1	0071-01 840708	WTR	MO	VICKERS YES AA-00866-R-2A
FAILURE MODE-LEAK-EXTERNAL. PUMP WAS REPORTED LEAKING AFTER HOT FIRING TEST. CASE WAS OVERPRESSURIZED CAUSING DAMAG E TO CASE COVER SEAL.						
CORRECTIVE ACTION-MO CORRECTIVE ACTION RECOMMENDED SINCE DAMAGE OCCURRED DUE TO INADVERTENT OVERPRESSURIZATION OF V M PUMP.						
HYDRAULIC-A/B BOOSTER	00A1018.5 HYDRAULIC PUMP	UTP-PRT 27-00866-1	840814	CONVAIR	YES	VICKERS MO AA-00866-R-2A
FAILURE MODE-LEAK-EXTERNAL. 8/M 208-0066 FAILED TO MEET CASE RRAIN LEAKAGE REQUIREMENTS OF 0.0 GPM DURING PRT-147. THIS UNIT ALSO FAILED TO MEET PEAR TRANSIENT PRESSURE REQUIREMENTS. REFER TO PPR-4201.						
SYSTEM EFFECT-NONE.						

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DIFFICULTIES REVIEW-HYDRAULIC SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME	DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-BOOSTER HYDRAULIC FILL AND BLEED PERFORMED.							
HYDRAULIC-A/B BOOSTER	PTAB867/P8-WO-01-046	COMPOSITE-FRD/DPL	1810	308	NO	NO	659763
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. TEST WAS RUN WITHOUT BOOSTER HYDRAULICS BECAUSE BOOSTER MPU COULD NOT BE OPERATED REMOTELY. THIS WAS NOTED DURING AUTOPILOT FINAL CHECKS.							
SYSTEM EFFECT-OPERATION DOES NOT START.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-BOOSTER MPU HAND VALVE, MICROSWITCHES VS AND VI ADJUSTED TO MAKE WIPER CONTACT.							
HYDRAULIC-A/B BOOSTER	60C/8KPS-048/01-401-00-18	FLIGHT	580	8-1	YES	NO	659763
FAILURE MODE-LEAK. B1 HYDRAULIC ACCUMULATOR PRESSURE EXHIBITED NO PRESSURE DIFFERENCE DURING THE OIL EVACUATION SEQUENCE.							
SYSTEM EFFECT-POSSIBLE CONTAMINATION. ALTHOUGH THE FAILURE MODE INDICATES THE POSSIBILITY OF AIR IN THE BOOSTER HYDRAULIC SYSTEM, SYSTEM PERFORMANCE WAS SATISFACTORY.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE. THE POSSIBILITY OF CONTAMINATION WAS NOT CONFIRMED BY ANY OTHER TELEMETRY DATA.							
HYDRAULIC-A/B BOOSTER	60C/8KPS-038/02-401-00-177	FLIGHT	1770	8-2	NO	NO	659763
FAILURE MODE-OUT OF TOLERANCE. BOOSTER HYD ACCUM. PRESS MEASUR. H33P AND HYD. PUMP OUTLET PRESS. MEASUR MSP INDICATED AN INITIAL NORMAL PRESS. RISE BUT TO A LOWER (3150 PSIA) THAN NORMAL (3300 PSIA) PEAK AT 2.3 SEC. THE PRESS. THEN DECREASED TO 2120 PSIA DURING NEXT 1.3 SEC. SPECIFIC CAUSE UNKNOWN BUT SYMPTOMATIC OF UNUSUALLY HEAVY DEMAND ON SYSTEM.							
SYSTEM EFFECT-OPERATION TOO LOW. BOOSTER HYDRAULIC PRESS. LOWER THAN NORMAL FOR A TIME PERIOD OF -2.3 SEC TO 1.3 SEC. NO ADVERSE EFFECT NOTED ON SYSTEM PERFORMANCE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
HYDRAULIC-A/B BOOSTER	60/CZ2MNS-019-0A1047-/L4-7MO-01-71	COMPOSITE-FRD/DPL	7107	8-4	YES	NO	659763

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-ROUND-A/B	304-30701/82-401-00-81 CONNECTOR	COUNTDOWN	81D 830824	BS	YES NO	692244
FAILURE MODE-FAIL DURING OPERATION. INTEGRATOR MULLING FAULT ON LAP. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. VEHICLE EFFECT-COUNTDOWN ABORTED. CORRECTIVE ACTION-CONNECTOR REPAIRED.						
AUTOPLOT-ROUND-A/B	83-440-01-66 CONNECTOR	COMPOSITE-FRD/DPL	84D 830321	BS	YES NO	896103
FAILURE MODE-FAIL TO OPERATE. SIGNAL TEST FAIL RED DURING LOOP TEST. SYSTEM EFFECT-OPERATION DOES NOT START. VEHICLE EFFECT-COMPOSITE ABORTED. CORRECTIVE ACTION-UNKNOWN.						
AUTOPLOT-ROUND-A/B	81-44-01-64 UNILICAL	COMPOSITE-FRD/DPL	84D 830909	BS	NO NO	892710
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PIN 83 BENT. MISSILE SIDE OF UNILICAL PLD01P CAUSED OPEN CIRCUIT. SYSTEM EFFECT-OPERATION DOES NOT START. FLIGHT PROGRAMMER FAILED TO ARM AFTER POWER TRANSFER TO INTERNAL. VEHICLE EFFECT-COMPOSITE DELAY AND RESCHEDULED. CORRECTIVE ACTION-CONNECTOR REPAIRED.						
AUTOPLOT-ROUND-A/B	A682-0729/83-408-00-08 CONNECTOR	COUNTDOWN	80 830808	BS	YES CANNON NO	894279
FAILURE MODE-ERRATIC OPERATION. INTERMITTENT BOOSTER 2 PITCH INDICATION ON THE LAP. SYSTEM EFFECT-ERRATIC OPERATION. VEHICLE EFFECT-COUNTDOWN ABORTED. CORRECTIVE ACTION-PLUG REPLACED.						
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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VEHICLE NAME VEHICLE PART NO	
AUTOPILOT-ROUND-A/B	AES-0811/B3-401-00-82	COUNTDOWN	820 820J18	83	YES NO		893243
FAILURE MODE-FAIL DURING OPERATION, LOOP TEST FAIL EVIDENCED BY LOOP TEST FAULTS ON LAUNCH ANALYST PANEL. (SUSTAINING AND VERNIER ENGINE YAW FAULTS).							
SYSTEM EFFECT-OPERATION STOPS PREMATURELY.							
VEHICLE EFFECT-COUNTDOWN DELAYED.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B	AES-0318/B3-401-00-189 UMBILICAL	COUNTDOWN	1290 820411	8-3	YES NO		896708
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. LOOSE UMBILICAL PLUGGING.							
SYSTEM EFFECT-OPERATION DOES NOT START. FLIGHT CONTROL INTEGRATOR HALL NO-60 DURING LOOP TEST.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-TIGHTENED UMBILICAL.							
AUTOPILOT-ROUND-A/B	AES-0318 UMBILICAL	COMPOSITE-PRD/DPL	1290 820406	8-3	YES NO		896704
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. LOOSE UMBILICAL PLUGGING.							
SYSTEM EFFECT-OPERATION DOES NOT START. FLIGHT CONTROL INTEGRATOR FAULT DURING LOOP TEST							
VEHICLE EFFECT-COMPOSITE DELAY.							
CORRECTIVE ACTION-TIGHTENED UMBILICAL.							
AUTOPILOT-ROUND-A/B	AES-1107/B3-408-00-88 UMBILICAL	COUNTDOWN	820 811806	83	YES NO		896709
FAILURE MODE-FAIL DURING OPERATION, LOOSE UMBILICAL CONTACT CAUSING OPEN-CIRCUIT.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS, STAGING FAULTS DURING LOOP TEST.							
VEHICLE EFFECT-COUNTDOWN DELAYED AND RE-SCHEDULED.							
CORRECTIVE ACTION-UNKNOWN.							

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SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-ROUND-A/B	AE61-0848/B2-401-00-83	FLIGHT	931 810324 0	B2	YES NO	897663
<p>FAILURE MODE-OUT OF SPECIFICATION. THE VEHICLE PITCHOVER WAS IN EXCESS BY 4.03 DEGREES. THIS WAS VERIFIED BY RADAR AND THEODOLITE DATA. INVERTER VOLTAGE AND FREQUENCY COULD ACCOUNT FOR ONLY 0.84 DEGREE OF THE EXCESS.</p> <p>SYSTEM EFFECT-OPERATION TOO HIGH. PITCH OVER RATE EXCESSIVE BY 7 PERCENT.</p> <p>VEHICLE EFFECT-IMPROPER TRAJECTORY. ALTHOUGH REENTRY VEHICLE IMPACT WAS SATISFACTORY, EXCESSIVE PITCH OVER CAUSED A REATER DISPERSION THAN NOMINAL FROM PLANNED FLIGHT TRAJECTORY.</p> <p>CORRECTIVE ACTION-NONE.</p>						
AUTOPLOT-ROUND-A/B	AE60-0388/FC-4CO-01-73 HARNES	COMPOSITE-FACTORY	730 600512	D13	YES NO	899330
<p>FAILURE MODE-FAIL DURING OPERATION-VERNIER NO. 2 PITCH/ROLL FEEDBACK TRANSDUCER VOLTAGE WAS NOT RECORDED ON CHANNEL 4 OF THE SAMPSON RECORDER DURING THE COMPOSITE TEST. VISUAL OBSERVATIONS INDICATED ERRATIC MOVEMENTS OF THE ENGINE. INTERMITTANT GROUNDING OCCURRED AT THE SPLICE NEAR THE FEEDBACK TRANSDUCER PLUS (P607 PINS).</p> <p>SYSTEM EFFECT-ERRATIC OPERATION.</p> <p>VEHICLE EFFECT-COUNTDOWN, COMPOSITE DELAYED OR RESCHEDULED. POST COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-HARNES WAS REMOVED AND THE GROUNDING WAS ELIMINATED.</p>						
AUTOPLOT-ROUND-A/B	AZN-27-314/FC-4CO-01-27	COMPOSITE-FACTORY	270 590713		NO NO	894337
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SUSTAINER ENGINE REMAINED AT THE POSITIVE YAW LIMIT THROUGHOUT THE TEST. THIS WAS ATTRIBUTED TO AN OPEN CIRCUIT FOUND IN THE GSE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. A PARTIAL COMPOSITE RETEST WAS PERFORMED.</p> <p>CORRECTIVE ACTION-GSE WAS REPAIRED.</p>						
AUTOPLOT-ROUND-A/B	VTAA323/P1-203-00-8	PH	98 581027	11	YES NO	891773
<p>FAILURE MODE-OUT OF TOLERANCE. DURING THE RATE GYRO CHECK VIBRATIONS OF 28-32 CPS AND 8-10 CPS WERE OBSERVED.</p> <p>SYSTEM EFFECT-NONE.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B	PIA4252/PA-201-00-08	PR7	98 360906	14 -5400	YES NO		891033
<p>FAILURE MODE-ERRATIC OPERATION. MECHANICAL FEED BACK FROM THE VERNIER ENGINES TO THE ROLL RATE GYRO RESULTED IN LARGE AMPLITUDE 2.2 CPS OSCILLATIONS IN ALL CHANNELS. THIS OCCURRED DURING THE LOOP TEST AND WAS SO SEVERE A SECOND LOOP TEST WAS REQUIRED TO EVALUATE AUTOPILOT OPERATION.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION. LARGE AMPLITUDE 2.2 CPS OSCILLATIONS IN ALL CHANNELS DURING THE LOOP TEST.</p> <p>VEHICLE EFFECT-COUNTDOWN DELAYED. PROBLEM OCCURRED DURING A HOLD AND RESULTED IN AN EXTENSION OF THE HOLD OF UNDETEMINED AMOUNT.</p> <p>CORRECTIVE ACTION-NONE. THIS WAS NOT CONSIDERED A FLIGHT PROBLEM.</p>							
AUTOPILOT-ROUND-A/B PROGRAMMER	60C/BK765-055/B1-401-00-183 SWITCH	FLIGHT	1830 850904	WTR 35L	YES NO	60C	894463
<p>FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. PROGRAMMER RECYCLED AT SOME TIME AFTER VECO. THIS HAS BEEN A COMMON OCCURRENCE, CAUSED BY OVERLAPPING TOLERANCES ON TWO CAN OPERATED SWITCHES WHICH CAUSED THE REAL TIME SWIFT TO REPEAT ITS CYCLE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. PROGRAMMER RECYCLING RESULTED IN RE-VENTING OF ENGINE TANKS WHICH INDUCED A COUNTER CLOCKWISE ROLL RATE OF 2.8 DEGREES PER SECOND TO THE VEHICLE AT 359.4 SECONDS.</p> <p>CORRECTIVE ACTION-NONE. THIS IS NOT CONSIDERED A PROBLEM.</p>							
AUTOPILOT-ROUND-A/B PROGRAMMER	9P-99-04-4453-F PAR 27-41433-9	FACTORY	630924		YES NO	60/C	893434
<p>FAILURE MODE-FAIL DURING OPERATION. THE PITCH-2 ASSEMBLY REPORTEDLY FAILED DURING MANUFACTURING TESTS OF THE TOP PA CASE. IT WAS REPORTED THE PROGRAMMER FAILED A SHOCK TEST. FAILURE ANALYSIS FUNCTIONALLY TESTED THE PITCH-2 ASSEMBLY SUBMITTED FOR ANALYSIS. THE REPORTED FAILURE COULD NOT BE CONFIRMED UNDER STATIC VIBRATION OR SHOCK CONDITIONS.</p> <p>CORRECTIVE ACTION-SINCE THERE WAS NO FAILURE OF THE PITCH 2 ASSY. AND SINCE ASSOCIATED CIRCUITRY WAS NOT SUBMITTED FOR ANALYSIS, NO FURTHER ACTION TAKEN.</p>							
AUTOPILOT-ROUND-A/B PROGRAMMER	22H93-02:/DA943/LS-AND-01-139 PROGRAMMER	COMPOSITE-PRD/DPL	1390 930902	1-2	YES NO	60/C	
<p>FAILURE MODE-PAILED DURING OPERATION. PROGRAMMER FAILED.</p> <p>SYSTEM EFFECT-IMPROVED DISCRETE SIGNALS. CAUSED INTERMITTANT BOOSTER JETTISON SIGNAL.</p>							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COMPOSITE DELAYED.							897837
CORRECTIVE ACTION-PROGRAMMER REPLACED. (PR-V0187SP).							898742
AUTOPILOT-ROUND-A/B PROGRAMMER	A-98-04-4211F	FAR 7-41011-995	1540 630406	FACTORY	YES	60/C NO	
FAILURE MODE-OUT OF TOLERANCE. INTEGRATOR MOTOR STOP VOLTAGE OUT OF SPEC. FAILURE WAS DUE TO PROGRAMMER HAVING BEEN CALIBRATED ON LOW SIDE OF NOMINAL. TOLERANCE BAND ON STOP VOLTAGE IS ADEQUATE TO COVER SHIFT DUE TO WARM UP IF UNIT IS CALIBRATED NEAR NOMINAL VALUE.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE INFORMED TO ADJUST INTEGRATOR STOPS AS CLOSE TO NOMINAL AS POSSIBLE.							897701
AUTOPILOT-ROUND-A/B PROGRAMMER	A-98-04-4199-F	FAR 7-41011-995	630404	FACTORY	NO	60/C NO	
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. PROGRAMMER WOULD NOT RESET TO ZERO DURING MISSILE FINAL CHECKOUT . NOT CONFIRMED. BELIEVED TO BE APOE.							
CORRECTIVE ACTION-APOE TEST EQUIPMENT TROUBLE CORRECTED.							894394
AUTOPILOT-ROUND-A/B PROGRAMMER	A-99-04-4224F HARNES	FAR 7-41011	1630 630311	FACTORY	YES NO		
FAILURE MODE-ELECTRICAL OPEN. CAN WAS REJECTED FOR LOW YAW VERNIER ENGINE CONTROL GAIN. FAILURE WAS CAUSED BY BROKE IN WIRE IN HARNES.							
CORRECTIVE ACTION-FACTORY PERSONNEL TO HANDLE COMPONENT WITH CARE.							898773
AUTOPILOT-ROUND-A/B PROGRAMMER	A-99-04-3493-F ROLL INTEGRATOR MOTOR	FAR 7-41011-995	1500 821107	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE. THE PROGRAMMER WAS 18/D FOR FAILING TO RESPOND TO HIGH-SIDE VOLTAGE INPUTS. FAILURE WAS TRACED TO FAULTY ROLL INTEGRATOR MOTOR. FAILURE ANALYSIS FOUND A LOW RESISTANCE BETWEEN PINS 2 AND 4 OF 40 OHMS. RESISTANCE SHOULD HAVE BEEN 150 OHMS. NO BURNED SECTIONS OR OTHER DISCREPANCIES WERE FOUND.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE MODE NOT FOUND.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VEHICLE NAME VENDOR PART NO
AUTOPILOT-ROUND-A/B PROGRAMMER	A-48-04-3483-F TRANSFORMER	FAR 7-41011-995	1470 821004	FACTORY	YES NO	894456
FAILURE MODE-OUT OF SPECIFICATION. THE PROGRAMMER- INTEGRATOR-AMPLIFIER CANISTER WAS IR/D WHEN B-1 ENGINE WENT HARD -OVER IN POS. YAW DIRECTION. ANALYSIS SHOWED WIRE FROM TRANSFORMER 7203 PIN 43 WAS MISWIRED TO PIN 136 OF THE PLATE ASSEMBLY (P/N 7-41690). WIRE WAS CONNECTED TO PROPER PIN (PIN 136) AND NORMAL OPERATION WAS RESTORED.						
CORRECTIVE ACTION-INSPECTION SUPERVISION IMPRESSED COPIZANT PERSONNEL WITH THE IMPORTANCE OF CORRECT WIRING.						
AUTOPILOT-ROUND-A/B PROGRAMMER	AER-C481/B2-402-00-143 SWITCH	FLIGHT	1410 820712	B-2 D.	YES YES	895462
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING THE FIRST 90 SECONDS OF FLIGHT, ENGINE RESPONSE IN YAW WAS GREATLY ATTENUATED, DUE TO FAILURE OF PROGRAMMER SWITCH 45; THE YAW CHANNEL STABILIZATION FILTER OR AN OPEN CIRCUIT IN A CONNECTOR OR HARNESS.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. YAW CONTROL WAS MARGINAL UNTIL 90 SECONDS WHEN THE FILTER OUTPUT SIGNAL WAS ACQUIRED. SYSTEM PERFORMANCE WAS THEN SATISFACTORY.						
VEHICLE EFFECT-NONE. ACQUISITION OF YAW CONTROL AT 90 SECONDS WAS SATISFACTORY FOR OVER-ALL MISSION ACCOMPLISHMENT.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-ROUND-A/B PROGRAMMER	SP-A9-04-3231P CURRENT LIMITER	FAR	1800 820605	FACTORY	NO NO	894813
FAILURE MODE-OPEN (ELECT) NO OUTPUT-DURING PROGRAMMER CHECKOUT SWITCH 14 HAD NO OUTPUT. FAILURE CAUSED BY AN OPEN-CU RRENT LIMITER IN SW 14 AS A RESULT OF EXCESSIVE CURRENT.						
CORRECTIVE ACTION-FUSE HOLDERS IN SIMULATION CHECKOUT EQUIPMENT WERE REPLACED BY A MORE RELIABLE FUSE HOLDER.						
AUTOPILOT-ROUND-A/B PROGRAMMER	HC-99-04-3227-F	FAR 27-41001-967	820608	FACTORY	YES 60/C NO	894567
FAILURE MODE-FAIL DURING OPERATION-SUSTAINER CUTOFF SIGNAL FAILED.						
CORRECTIVE ACTION-UNKNOWN. FAILURE UNCONFIRMED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B PROGRAMMER	HQ-99-04-32287	FAR 27-41826-3	820322	FACTORY	YES	607C NO	994598
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SUSTAINER ENGINE CUTOFF SIGNAL DID NOT OCCUR DURING PROGRAMMER ACCEPTANCE VIBRATION TESTING.							
CORRECTIVE ACTION-UNKNOWN. FAILURE UNCONFIRMED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A-10C-04-3448-F SEQUENCER MOTOR RELAY	FAR N/A	820322	NORTON	YES	BELOCK INST. NO 211-182	993644
FAILURE MODE-SHORT (ELECT). THE SEQUENCER MOTOR FAILED TO OPERATE DUE TO A LEAD FROM PIN 4 OF RELAY K372 SHORT CIRCUITING TO A CASE SCREEN.							
CORRECTIVE ACTION-THE CASE SCREEN WHICH CUT THE INSULATION OF THE MOTOR START WIRE WAS CALLED TO BE REMOVED BY A DRA WING CHANGE OVER TWO YEARS PRIOR TO THIS FAILURE.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A-10C-04-3448-F ZERO SEQUENCE TIMER SWITCHES	FAR 7-1011-977	820322	NORTON	YES	BELOCK NO 211-102	993003
FAILURE MODE-OUT OF TOLERANCE. DURING CAPCHE TEST, OCTAL READOUTS INDICATED MISADJUSTMENT OF TIMER SWITCHES. A POSSIBLE CAUSE OF THE OUT OF TOLERANCE INDICATION WAS A CAPCHE MALFUNCTION.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED. NORTON AFB PERSONNEL WERE ADVISED OF THE RESULTS OF THIS ANALYSIS.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A-10C-04-3447-F ZERO SEQUENCE TIMER SWITCHES	FAR 7-41011-977	820320	NORTON	YES	BELOCK NO 211-188	998002
FAILURE MODE-OUT OF TOLERANCE. DURING CAPCHE TEST, OCTAL READOUTS INDICATED MISADJUSTMENT OF TIMER SWITCHES. A POSSIBLE CAUSE OF THE OUT OF TOLERANCE INDICATION WAS A CAPCHE MALFUNCTION.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED. NORTON AFB PERSONNEL WERE ADVISED OF THE RESULTS OF THIS ANALYSIS.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B PROGRAMMER	AD62-0021/DA678/LB-401-00-112	COUNTDOWN 27-41001-978	1120 620224	PALCI-2	YES NO	YES 60/C	894330
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME AUTO PILOT PROGRAMMER FAILED TO START ON COMMAND DURING TASK 11.							
SYSTEM EFFECT-OPERATION DOES NOT START.							
VEHICLE EFFECT-LAUNCH ATTEMPT ABORTED AND RESCHEDULED.							
CORRECTIVE ACTION-UNKNOWN. (FAR 9D-04-3133)							
AUTOPILOT-ROUND-A/B PROGRAMMER	A-99-04-3236-C	FAR 27-40984-3	620112	FACTORY	YES NO	YES 60/C	894532
FAILURE MODE-PREATURE OPERATION-PITCH PROGRAM OCCURRED EARLY DURING PROGRAMMER CHECKOUT.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A-99-04-3237-C	FAR 27-41428-3	620112	FACTORY	YES NO	YES 60/C	894533
FAILURE MODE-PREATURE OPERATION-PITCH PROGRAM OCCURRED EARLY DURING PROGRAMMER CHECKOUT.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B PROGRAMMER	68-04-194 RELAY/SWITCH	FAR 7-41011-983	93D 612000	WTR	YES NO	YES NO	894393
FAILURE MODE-ELECTRICAL SHORT. TIME-DURING AN APACHE HYDRAULIC PILL AND BLEED PROCEDURE THE PROGRAMMER FAILED TO REC YCLE TO ZERO POSITION. RELAYS 8354 AND 8331 HAD HIGH RESISTANCE AND SWITCH 8373-6 WAS FOUND TO HAVE BEEN IMPROPERLY GASED.							
CORRECTIVE ACTION-ACTION HAS BEEN INITIATED TO AUGMENT THE EXISTING PROGRAMMER REMOVAL AND RE-FURNISHMENT TROUBLE SH OOTING PROCEDURE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B PROGRAMMER	AB141-0-1-148/FC-4CO-01-142 AMPLIFIER	COMPOSITE-FACTORY 7-41011-083	142D 81110		YES NO	60/C	898433
<p>FAILURE MODE-FAIL DURING OPERATION- YAW INTEGRATOR FAILED TO RESPOND DURING TEST. ALSO THE BOOSTER ENGINE WENT TO Y ME LIMIT DURING YAW SYRO TORQUING TEST. CANISTER REMOVED AND TAKEN TO COMPONENT AREA WHERE THE "AW INTEGRATOR MOTOR AMPLIFIER WAS FOUND TO BE BURNED OUT.</p> <p>SYSTEM EFFECT-OPERATION DOES NOT START- BURNED OUT INTEGRATOR MOTOR AMPLIFIER PREVENTED TEST FROM STARTING.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED.</p> <p>CORRECTIVE ACTION-THE SERVOMPLIFIER/INTEGRATOR/PROGRAMMER CANISTER WAS REPAIRED AND REINSTALLED ON THE MISSILE.</p>							
AUTOPLOT-ROUND-A/B PROGRAMMER	AE61-0964/PCA-4CO-02-140 CALIBRATOR	COMPOSITE-FACTORY	140D 810929		YES NO		898438
<p>FAILURE MODE-OUT OF TOLERANCE. CARD 162 (SET AND MEASURE TEST ROLL VOLTAGE) INDICATED A NO-60 LOW.</p> <p>SYSTEM EFFECT-OPERATION TOO LOW- LOW ROLL VOLTAGE OUTPUT FROM PROGRAMMER.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED.</p> <p>CORRECTIVE ACTION-PROGRAMMER REPLACED.</p>							
AUTOPLOT-ROUND-A/B PROGRAMMER	AE61-09641/PCA-4CO-02-140 CONNECTOR	COMPOSITE-FACTORY	140D 810929		YES NO		898436
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- DECK 18-TUG, CARDS 22 AND 23 (CHECK SWITCHES 83 AND 38 OPEN) INDICATED NO-60 HIGH. CONNECTORS P302 AND P303 OF PROGRAMMER SERVO CANISTER WERE LOOSE.</p> <p>SYSTEM EFFECT-OPERATION DOES NOT START- LOOSE PLUGS ON SERVO CANISTER PREVENTED OPERATION FROM OCCURRING.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE REBAM.</p> <p>CORRECTIVE ACTION-NOT KNOWN.</p>							
AUTOPLOT-ROUND-A/B PROGRAMMER	AE61-0961/FC-4CO-01-141	COMPOSITE-FACTORY	141D 810915		FACTORY NO	60/C	
<p>FAILURE MODE-OUT OF TOLERANCE. ALL ROLL TORQUING RATES DURING VERNIER ENGINE PHASE WERE LOWER THAN EXPECTED. THIS WAS DUE TO AN IMPROPER ROLL TORQUING VOLTAGE INPUT.</p> <p>SYSTEM EFFECT-OPERATION TOO LOW- ROLL TORQUING RATES TOO LOW- CAUSED BY IMPROPER SETTING OF ROLL TORQUING VOLTAGE IN A66.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED POST-COMPOSITE TESTING TO DEMONSTRATE SATISFACTORY OPERATION.</p>							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME	SITE TIME OF DAY	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-ROLL TORQUING VOLTAGE RESET.							898434
AUTOFLOT-ROUND-A/B PROGRAMMER	AE61-0275/FC-4CO-01-116	COMPOSITE-FACTORY	1160 810808	FACTORY	NO	60/C NO	899794
FAILURE MODE-ERRATIC OPERATION. STAGING DISCRETE SIGNAL INDICATED A VOLTAGE DROP AT SUSTAINER CUTOFF. CAUSED BY INCORRECT PROGRAMMER TAPES.							
SYSTEM EFFECT-ERRATIC OPERATION. STAGING DISCRETE SIGNAL CHANGED VOLTAGE LEVEL AT SUSTAINER CUTOFF. CAUSED BY INCORRECT PROGRAMMER TAPES.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. RETURN OF COMPOSITE REQUIRED.							
CORRECTIVE ACTION-TEST PROGRAMMER TAPES CORRECTED.							899793
AUTOFLOT-ROUND-A/B PROGRAMMER	AE61-0275/FC-4CO-01-116	COMPOSITE-FACTORY	1160 810808	FACTORY	NO	60/C NO	
FAILURE MODE-ERRATIC OPERATION. VERNIER ROLL BIAS VOLTAGES WERE TOO LOW FROM 75 UNTIL 90 SECONDS OF THE TEST. THIS ANOMALY WAS CAUSED BY INCORRECT TEST PROGRAMMER TAPES.							
SYSTEM EFFECT-ERRATIC OPERATION. VERNIER BIAS VOLTAGE TOO LOW FROM 75 TO 90 SECONDS OF TEST.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. RETURN OF COMPOSITE REQUIRED.							
CORRECTIVE ACTION-TEST PROGRAMMER TAPES WERE CORRECTED.							899283
AUTOFLOT-ROUND-A/B PROGRAMMER	AE61-0360/FC-4CO-01-125	COMPOSITE-FACTORY	1250 810816	FACTORY	YES	NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PITCH PROGRAM STARTED EARLIER THAN EXPECTED.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE DELAYED. COMPOSITE FIX TEST WAS REQUIRED TO VERIFY A/P SYSTEM INTEGRITY.							
CORRECTIVE ACTION-NONE-PROBLEM COULD NOT BE DUPLICATED ON NUMEROUS RETESTS.							
AUTOFLOT-ROUND-A/B PROGRAMMER	AE61-0188/FC-4CO-02-115 TRANSMITTER	COMPOSITE-FACTORY	1150 810321	FACTORY	YES	NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE UNCASE GYRO FUNCTION DID NOT OCCUR AT VERNIER CUTOFF AS A RESULT OF TWO FAULTY TRANSISTORS LOCATED IN THE PROGRAMMER 8200 BINARY CIRCUIT.							
SYSTEM EFFECT-OPERATION DOES NOT START. THE SIGNAL TO UNCASE THE UPPER STAGE GYRO WAS NOT SENT.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP OTH	PRI VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COMPOSITE RESCHEDULED. PROGRAMMER REPLACED AND COMPOSITE RERAN. CORRECTIVE ACTION-ANOTHER PROGRAMMER INSTALLED, AND APPLICABLE SYSTEMS LEVEL TESTING WAS PERFORMED.						
AUTOPILOT-ROUND-A/B PROGRAMMER	AE61-0188/FC-4CO-01-115 TRANSISTOR	COMPOSITE-FACTORY	115D 610520	FACTORY	YES NO	009767
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE UNKAGE CYROS FUNCTION DID NOT OCCUR AT VERNIER CUTOFF AS EXPECTED.						
SYSTEM EFFECT-OPERATION DOESNOT START. THE SIGNAL TO UNKAGE UPPER STAGE STROB WAS NOT SENT.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. RERUN OF COMPOSITE MADE.						
CORRECTIVE ACTION-QUANTITATIVE EVALUATION COULD NOT BE ACCOMPLISHED AS TIMING LINES FOR MIDWESTERN RECORDER AND THE BINARY TIMING CODE FOR THE NOSE CONE SIMULATOR RECORDING WERE NOT APPARENT. INVESTIGATION REVEALED THAT THE TIMING CIRCUITRY WAS NOT PROPERLY CONNECTED TO THE TEST EQUIPMENT. PROGRAMMER REPLACED ON NEXT COMPOSITE FC-4CO-02-115 DATE 610531 WHEN SAME PROBLEM REOCCURRED.						
AUTOPILOT-ROUND-A/B PROGRAMMER	AE61-0274/FC-4CO-02-111 TRANSISTOR	COMPOSITE-FACTORY	111D 610312	FACTORY	YES NO	009533
FAILURE MODE-FAIL DURING OPERATION-DURING THE SECOND FACTORY COMPOSITE TEST, A FAILURE WAS AGAIN NOTED IN THE PITCH PROGRAMMER. TWO EXTRA VOLTAGE CHANGES WERE OBSERVED BETWEEN 75 AND 85 SECONDS FROM PITCH PROGRAMMER START. DEFECTIVE TRANSISTOR IN PROGRAMMER LOGIC.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS-TWO EXTRA VOLTAGE CHANGES OBSERVED BETWEEN 75 AND 85 SECONDS.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED -PROGRAMMER IR/D, REPAIRED, AND A THIRD COMPOSITE TEST MADE ON VEHICLE.						
CORRECTIVE ACTION-PROGRAMMER IR/D AND DEFECTIVE TRANSISTOR REPLACED IN PROGRAMMER LOGIC.						
AUTOPILOT-ROUND-A/B PROGRAMMER	AE61-0274/FC-4CO-01-111 TRANSISTOR	COMPOSITE-FACTORY	111D 610508	FACTORY	YES NO	009537
FAILURE MODE-PREATURE OPERATION-STAGING ENABLE OCCURRED 4 SECONDS EARLY. FAILED TRANSISTOR IN LOGIC CIRCUITRY.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS-STAGING ENABLE OCCURRED 4 SECONDS EARLY.						
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. RE-RUN OF COMPOSITE REQUIRED.						
CORRECTIVE ACTION-PROGRAMMER IR/D AND FAILED TRANSISTORS REPLACED.						

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SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-ROUND-A/B PROGRAMMER	AE61-0274/PC-4CO-01-111 SWITCH/ARM-SAFE	COMPOSITE-FACTORY	1110	FACTORY	YES NO	
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE FUSES IN THE NOSE CONE SIMULATOR FAILED TO BLOW, CHANNELS 5, 6, 7, AND 8 WERE OUT OF SEQUENCE AND CHANNEL 6 FAILED TO INDICATE RECEIPT OF THE GUIDANCE RESET TIMER COMMAND.</p> <p>SYSTEM EFFECT-OPERATION DOES NOT START. IRREGULARITIES WERE ATTRIBUTED TO EITHER ERROR OR TEST EQUIPMENT MALFUNCTION. FURTHER INVESTIGATION REVEALED THAT THE WRONG ARMING DEVICE WAS INSTALLED.</p> <p>VEHICLE EFFECT-COMPOSITE RE-SCHEDULED-REARM COMPOSITE.</p> <p>CORRECTIVE ACTION-REPLACED ARMING DEVICE.</p>						
AUTOPILOT-ROUND-A/B PROGRAMMER	AE61-0274/PC-4CO-01-111 TRANSISTOR	COMPOSITE-FACTORY	1110	FACTORY	YES NO	
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-TWO DISCRETE STEPS IN THE PITCH PROGRAMMER WERE NOT INDICATED.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-THE PITCH RATE VOLTAGE FAILED TO CHANGE AT 45 SECONDS AND AT 55 SECONDS AFTER START OF THE PITCH PROGRAMMER.</p> <p>VEHICLE EFFECT-COMPOSITE RE-SCHEDULED-COMPOSITE REARM AFTER REPAIRS TO PROGRAMMER WERE MADE.</p> <p>CORRECTIVE ACTION-TWO TRANSISTORS IN PROGRAMMER LOGIC CIRCUITRY WERE REPLACED.</p>						
AUTOPILOT-ROUND-A/B PROGRAMMER	6R-04-216 SWITCH	FAR 7-41011-977	910	WTR	YES NO	
<p>FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE APCHE CARD MEASURING CLOSURE TIME OF SWITCHES 16 AND 41 GAVE A NO-60 SIGNAL INDICATING FAULTY SWITCHES. FAILURE COULD NOT BE TRACED TO ANY COMPONENT.</p> <p>CORRECTIVE ACTION-NONE-FAILURE COULD NOT BE CONFIRMED.</p>						
AUTOPILOT-ROUND-A/B PROGRAMMER	6R-04-195 SWITCH	FAR 7-41011-995	910	WTR	YES NO	
<p>FAILURE MODE-PREATURE OPERATION. DURING A COUNTDOWN LOOP TEST GUIDANCE WAS ENABLED PRIOR TO THE SPECIFIED TIME. FAILURE WAS DUE TO SWITCH 58 BEING IMPROPERLY GATED AT RESET.</p> <p>CORRECTIVE ACTION-60/C TO AUGMENT EXISTING PROCEDURES TO PAY SPECIAL ATTENTION TO THE GATING AND INSPECTION OF THE GATING OF PROGRAMMER SWITCHES AT RESET.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PR1 OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/S PROGRAMMER	DA418-BE-4MO-01-98 SWITCH	COMPOSITE-PRO/DPL	950 610321	8768-2	YES NO		897376
FAILURE MODE-SHORT (ELECT). PROGRAMMER SWITCH IS SHORTED. SYSTEM EFFECT-OPERATION STARTS TOO EARLY. THE FLIGHT CONTROL SYSTEM RESPONDED TO GUIDANCE STEERING PRIOR TO 100 SEC ONDS. VEHICLE EFFECT-NONE. CORRECTIVE ACTION-PROGRAMMER REPLACED.							
AUTOPILOT-ROUND-A/S PROGRAMMER	GR-04-161 SWITCH	FAR 7-41011-905	950 610320	WTR	YES NO		894779
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING AN APACHE RUN THERE WAS NO OUTPUT FROM SWITCH 40 OF THE PR OSRAMER. BELIEVED TO BE CAUSED BY TEST EQUIPMENT. CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-ROUND-A/S PROGRAMMER	GR-04-169 SWITCH	FAR 7-41011-905	950 610320	WTR	YES NO		894385
FAILURE MODE-OUT OF TOLERANCE. DURING AN APACHE CHECK, USING DECK 13, CARD 177 WAS NO-GO. FAILURE COULD NOT BE CONFIRMED. SWITCH 72 OPERATED SATISFACTORILY DURING TESTING AT SAN DIEGO. BELIEVED TO BE CAUSED BY TEST EQUIPMENT. CORRECTIVE ACTION-NONE. CAUSE OF FAILURE COULD NOT BE DETERMINED.							
AUTOPILOT-ROUND-A/S PROGRAMMER	AE81-0097/FC-4CO-01-110 TRANSISTOR	COMPOSITE-FACTORY	1100 610316	FACTORY	YES NO		899387
FAILURE MODE-FAIL DURING OPERATION-AT TWO INTERVALS DURING THE TEST THE PITCH PROGRAM OUTPUT VOLTAGE WAS TOO HIGH. A DEFECTIVE TRANSISTOR WAS FOUND IN THE PITCH PROGRAM CIRCUITRY. SYSTEM EFFECT-OPERATION TOO HIGH. PITCH PROGRAM VOLTAGE WAS 2.0 VOLTS AT 18 TO 30 SECONDS AND AT 75 TO 85 SECONDS. REQUIRED VOLTAGE IS 1.0 PLUS OR MINUS 0.2 VOLTS. VEHICLE EFFECT-COMPOSITE DELAYED- ADDITIONAL SUBSYSTEM TESTING WAS REQUIRED TO SHOW CORRECT OPERATION AFTER DEFECTIVE VE TRANSISTOR WAS REPLACED. CORRECTIVE ACTION-REPLACED DEFECTIVE TRANSISTOR.							

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AUTOPLOT-ROUND-A/B PROGRAMMER	96-04-190 SWITCH	FAR 7-41011-977	86D 610306	QAFB	YES NO		894734
FAILURE MODE-FAILED TO CEASE OPERATION AT PRESCRIBED TIME. DURING APACHE TESTING DECK 37 INDICATED SWITCH 74 DID NOT CUT-OFF. BELIEVED TO BE TEST EQUIPMENT PROBLEMS.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-ROUND-A/B PROGRAMMER	AMPLIFIER TRANSFORMER	FAR 7-41011-977	86D 610304	QAFB	YES NO		894733
FAILURE MODE-FAIL DURING OPERATION. DURING APACHE TESTS THERE WAS NO OUTPUT FROM THE PITCH SERVO-AMPLIFIER. FAILURE WAS DUE TO THE FAILURE OF THE INTEGRATOR TRANSFORMER EXCITATION TRANSFORMER T-408.							
CORRECTIVE ACTION-SINCE THIS IS FIRST REPORTED FIELD FAILURE OF THIS TRANSFORMER AND CAUSE IS NOT KNOWN 60/C WILL I INTENSIFY SURVEILLANCE OF THIS COMPONENT.							
AUTOPLOT-ROUND-A/B PROGRAMMER	96-04-190	FAR 7-41011-977	61D 610302	QAFB	YES NO		894761
FAILURE MODE-OUT OF TOLERANCE. DURING APACHE TESTING SEVERAL NO-608 WERE RECEIVED DURING A PORTION OF THE PROGRAMMER PITCH PROGRAM. BELIEVED TO BE TEST EQUIPMENT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-ROUND-A/B PROGRAMMER	96-04-179	FAR 7-41011-977	73D 610226	WAFB	NO NO	60/C	894750
FAILURE MODE-FAIL DURING OPERATION. DURING AN APACHE RUN A NO-60 INDICATION WAS RECEIVED ON CARD 45, INDICATING AN IMPROPER RESET. FAILURE WAS LATER TRACED TO APACHE.							
CORRECTIVE ACTION-APACHE PROBLEM WAS RESOLVED AT WARREN.							

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AUTOPILOT-ROUND-A/B PROGRAMMER	AE61-0055/PC-4CO-01-100	COMPOSITE-FACTORY	1000 810229	FACTORY	NO	60/C NO
<p>FAILURE MODE-OUT OF TOLERANCE. SUSTAINER PITCH PROGRAM WAS 4.6 VOLTS. 5.0 PLUS OR MINUS 0.2 VOLTS IS EXPECTED. IT WAS DETERMINED THAT A 0.2 VOLT DROP EXISTED BETWEEN VEHICLE AND GROUND TEST EQUIPMENT.</p> <p>SYSTEM EFFECT-OPERATION TOO LOW- PITCH PROGRAM VOLTAGE TOO LOW- PITCH PHASE OF FLIGHT WOULD BE TOO HIGH.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. ADDITIONAL TESTING REQUIRED OF THE AUTOPILOT SYSTEM.</p> <p>CORRECTIVE ACTION-INVESTIGATION SHOWED PITCH PROGRAM OUTPUT WAS SATISFACTORY AT THE MISSILE BUT WAS BEING ATTENUATED IN THE MONITORING CIRCUIT. CORRECTED BY CALIBRATING THE COMPLETE MONITORING CIRCUIT AT THE MISSILE RATHER THAN AT THE RECORDING GALVANOMETER.</p>						
AUTOPILOT-ROUND-A/B PROGRAMMER	96-04-108	FAR 7-41015-919	39D 810223	ONPS	YES NO	
<p>FAILURE MODE-OUT OF TOLERANCE. DURING CAPONE TEST FIVE NO-60 CARDS WERE REPORTED DURING THE TEST. BELIEVED CAUSED BY INCOMPATIBILITY BETWEEN THE FACTORY AND FIELD TESTING.</p> <p>CORRECTIVE ACTION-FAILURE NOT CONFIRMED. 60/C INITIATED ACTION TO INCREASE THE COMPATIBILITY BETWEEN THE FACTORY AND FIELD TESTING.</p>						
AUTOPILOT-ROUND-A/B PROGRAMMER	96-04-109 DIPCODE	FAR 27-41001-939	11C 810202	SYCAMORE	NO NO	
<p>FAILURE MODE-ELECTRICAL OPEN. DURING A TEST FIRING THE SUSTAINER ENGINE WAS NOT CUT OFF AT THE PRESCRIBED TIME BY THE PROGRAMMER SCO SIGNAL. FAILURE WAS DUE TO AN OPEN CR11 DIODE THAT WAS INADVERTENTLY OVERLOADED PREVIOUSLY.</p> <p>CORRECTIVE ACTION-THE COMPONENT TEST SET WAS MODIFIED TO TEST THE SCO FUNCTION.</p>						
AUTOPILOT-ROUND-A/B PROGRAMMER	JA-04-107 DISPLACEMENT SYRO MOTOR	FAR 7-04250-1	810202	ONPS	YES NO	REARFOOT
<p>FAILURE MODE-ELECTRICAL SHORT. DURING A TEST AT THE PRODUCT SUPPORT CENTER THE SYRO HEATER CONTROL CIRCUIT EXHIBITED INTERMITTENT OPERATION. FAILURE INDICATION WAS DUE TO A PHASE TO PHASE SHORT CIRCUIT IN THE SPIN MOTOR STATOR WINDING, CAUSING OVERHEATING.</p> <p>CORRECTIVE ACTION-60/C MAINTAINED CLOSE SURVEILLANCE OF THIS FAILURE MODE TO DETERMINE WHETHER IT IS A REOCCURRING PROBLEM.</p>						

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AUTOPILOT-ROUND-A/B PROGRAMMER	68-04-147 SWITCH	FAR 7-41011-995	610127	WTR	NO NO		894895
FAILURE MODE-ELECTRICAL SHORT. DURING APACHE TEST SWITCHES 9, 16, 19, AND 74 DID NOT OPERATE PROPERLY. FAILURE WAS CAUSED BY INADVERTENT GROUNDING OF THE SWITCHES DURING TROUBLE SHOOTING PROCEDURES AT THE BASE.							
CORRECTIVE ACTION-FIELD PERSONNEL ALERTED TO OBSERVE ADEQUATE PRECAUTIONS WHEN CONDUCTING TROUBLE SHOOTING ACTIVITIES IN THE FIELD.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-043 AMPLIFIER	FAR 7-41011-977	602304	ETR	YES NO	50/C	897792
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-DURING AN ENGINEERING EVALUATION TEST THE YAW INTEGRATOR AMPLIFIER EXHIBITED NO OUTPUT VOLTAGE. FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-NONE-CAUSE WAS UNDETERMINED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-156 SWITCH	FAR 7-41011-977	601215	QAFB	YES NO		896614
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING APACHE CHECKOUT SWITCH 96 INDICATED IT WAS STICKING.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-139 POTENTIOMETER	FAR	101D 601204	FACTORY	YES NO	50/C O.	894134
FAILURE MODE-ERRATIC OPERATION-DURING CHECKOUT THE PROGRAMMER PITCH PROGRAM WAS ERRATIC AT 20 TO 30 SEC OF REAL TIME OPERATION. CAUSE WAS A FAULTY POTENTIOMETER THAT HAD EXCESSIVE END PLAY.							
CORRECTIVE ACTION-WEAR TO VENDOR TO TIGHTEN QUALITY CONTROL AND INSPECTION PROCEDURES.							
AUTOPILOT-ROUND-A/B PROGRAMMER	68-04-134	FAR 7-41011-995	99D 601201	WTR	NO NO	50/C	
FAILURE MODE-OUT OF TOLERANCE-DURING APACHE CHECK A NO-60 WAS RECEIVED. INTEGRATOR LOCKOUT VOLTAGE WAS LOW, INDICATING NO SUSTAINER DEACTIVATION DURATION TIME WAS TOO LONG. FAILURE ATTRIBUTED TO APACHE TOLERANCE STRUCTURE. APACHE WAS CHE							

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CRASH AT THE ENGINE INSTEAD OF AT THE PROGRAMMER REQUIRING AN ADDITIONAL 10 MILLI SECOND TIME LAG.							894170
CORRECTIVE ACTION-APACHE UPPER LIMIT TOLERANCE RAISED TO 200 MILLI-SECONDS TO ALLOW FOR SYSTEM LAG. LOWER LIMIT TOLERANCE INCREASED FROM -0.00 TO -70 MILLI-SECONDS.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-143 SWITCH	PAR 7-41011-823	601201	ETR	YES NO		894135
FAILURE MODE-OUT OF TOLERANCE. DURING LABORATORY CHECK PROGRAMMER WOULD NOT RESET TO ZERO. SWITCH 351F HAD BEEN MIS-SAGED DURING CALIBRATION AT 40/C.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B PROGRAMMER	AE60-1008/FC-4CO-02-101	COMPOSITE-FACTORY	101D 601126	FACTORY	YES 60/C NO		899421
FAILURE MODE-FAIL DURING OPERATION-NUMEROUS DROPOUTS WERE DISPLAYED DURING THE PITCH PROGRAMMER CYCLING.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COMPOSITE DELAYED-POST COMPOSITE TESTING OF THE AUTOPILOT SYSTEM REQUIRED							
CORRECTIVE ACTION-PITCH PROGRAMMER WAS REPLACED							
AUTOPILOT-ROUND-A/B PROGRAMMER	AE60-0868/FC-4CO-01-097	COMPOSITE-FACTORY	97D 601105	FACTORY	NO NO		899236
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- THE WCO AND UNKAGE SATELLITE GYRO DISCRETE FUNCTIONS OCCURRED SIMULTANEOUSLY BECAUSE RELAY K32 IN THE PROPULSION SYSTEM ENGINE RELAY BOX HAD NOT BEEN ENERGIZED. (PROCEDURE ERROR).							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS							
VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED OR RESCHEDULED-PARTIAL COMPOSITE RETEST PERFORMED.							
CORRECTIVE ACTION-COMPOSITE TEST PROCEDURE 27-92004-1 WAS REVISED (REVISION AV).							
AUTOPILOT-ROUND-A/B PROGRAMMER	AE60-0730/FC-5CO-01-009 CIRCUIT BOARD	COMPOSITE-FACTORY	9E 701011		YES NO		
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- VERNIER CUTOFF ACTIVATION DID NOT OCCUR.							

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VEHICLE EFFECT-COMPOSITE RESCHEDULED-COMPOSITE RE-RAN.							892393
CORRECTIVE ACTION-PROGRAMMER REMOVED AND LOGIC BOARD 3 REPLACED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	AE60-0730/FC-3CO-01-008 CIRCUIT BOARD	COMPOSITE-FACTORY	9E 801011	YES NO			892394
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-THE JETTISON BOOSTER PACKAGE SWITCH WAS OBSERVED TO OPEN 1.45 SECONDS AFTER ACTIVATION FOR A DURATION OF 0.35 SECONDS.							
SYSTEM EFFECT-OPERATION STARTS TOO LATE-SWITCH OPENS 1.45 SECONDS AFTER ACTIVATION.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE RE-RAN.							
CORRECTIVE ACTION-PROGRAMMER WAS REMOVED AND LOGIC BOARD NO. 3 REPLACED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	AE60-0741/FC-4CO-01-002	COMPOSITE-FACTORY	92D 800914	FACTORY YES	YES 60/C YES		892198
FAILURE MODE-OUT OF TOLERANCE. SUSTAINER AND VERNIER ACTUATOR SWITCHES WERE OUT OF TOLERANCE DURING COMPOSITE TESTING. THESE SWITCHES WERE NEAR THE LIMITS AT COMPONENT LEVEL.							
SYSTEM EFFECT-OPERATION TOO LONG.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEMS LEVEL AND COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-FLIGHT PROGRAMMER WAS REMOVED FOR READJUSTMENT OF SUSTAINER AND VERNIER ACTUATOR SWITCHES. SINGLE SYSTEM LEVEL TESTING SWITCH TIMING IS BASED PARTIALLY ON ENGINE FEEDBACK TRACE. TOLERANCES WERE REVIEWED FOR POSSIBLE REFINEMENT.							
AUTOPILOT-ROUND-A/B PROGRAMMER	90-04-123 RELAY	FAR 7-41011-077	79D 800831	ETR NO	YES NO		894189
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. PROGRAMMER REJECTED FOR FAILING TO RESET TO ZERO. RELAY K374 EXHIBITED INTERMITTENT HIGH CONTACT RESISTANCE.							
CORRECTIVE ACTION-(1) 60/C CULLED OUT DEFECTIVE STOCK (2) A SECOND SOURCE VENDOR WAS SELECTED. (3) PRODUCTION ITEMS SURVEYED AND DEFECTIVE RELAYS REPLACED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	AE60-0539/P2-402-00-32	COUNTDOWN	32D 800801	ETR -5000	YES NO	60/C	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE AUTOPILOT PROGRAMMER WAS NOT STARTED ON TIME FOR THE LOOP TEST							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATEZ DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS DUE TO LATE START OF PROGRAMMER. VEHICLE EFFECT-COMTODOWN DELAYED TO RERUN LOOP TEST. NO HOLD CALLED. CORRECTIVE ACTION-LOOP TEST RERUN. PROGRAMMER STARTED ON TIME.							894110
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-082	FAR 7-41011-877	320 800729	ETR	YES NO	YES 60/C	897748
FAILURE MODE-CONTAMINATION. PROGRAMMER REMOVED AND TESTED FOR MERCURY CONTAMINATION. CONTAMINATION CONFIRMED. PROGRAMMER SCRAPPED. CORRECTIVE ACTION-ALL FACTORY EQUIPMENT CHECKED FOR MERCURY CONTAMINATION. MERCURY MANOMETERS REPLACED WITH SAGES. ALL CANISTERS IN STOCK AND ON MISSILES CHECKED FOR CONTAMINATION. CANISTERS FOUND CONTAMINATED WERE REMOVED FROM FLIGHT STATUS.							897800
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-089	FAR 7-41011-877	320 800710	ETR	YES NO	YES 60/C	897800
FAILURE MODE-FAIL DURING OPERATION-DURING SYSTEM FREQUENCY RESPONSE TESTS THE PROGRAMMER STOPPED BETWEEN ZERO TIME AND BOOSTER CUTOFF. FAILURE ANALYSIS AT SO COULD NOT CONFIRM FAILURE. CORRECTIVE ACTION-NONE-CAUSE OF REPORTED FAILURE COULD NOT BE DETERMINED.							894810
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-117	FAR 7-41011-877	600707	FACTORY	YES NO	YES 60/C	894810
FAILURE MODE-OUT OF SPECIFICATION. NOTED DURING CAPCHE CHECKOUT. FAILURE NOT CONFIRMED BY FAILURE ANALYSIS. CORRECTIVE ACTION-NONE.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-082 AMPLIFIER-MECHANICAL	FAR 7-41011-877	330 803708	FACTORY	YES NO	YES 60/C	
FAILURE MODE-OUT OF TOLERANCE-DURING ENGINEERING EVALUATION TEST THE ROLL INTEGRATOR GAINS WERE BELOW SPECIFICATION LIMITS AND THE ROLL INTEGRATOR STOPS WERE TOO HIGH. ROLL INTEGRATOR GAIN DISCREPANCIES WERE NOT CONFIRMED.							

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	CORRECTIVE ACTION-COURSE ADJUSTMENT PROCEDURES AND ELECTRO-MECHANICAL INTEGRATOR STOP SETTING PROCEDURES WERE REVISED TO PRECLUDE FUTURE PROBLEMS.						897633
AUTOPILOT-ROUND-A/B PROGRAMMER	9D-04-099 AMPLIFIER-MECHANICAL INTEGRATOR	7-41011-977	800881	WTR	NO		897687
	FAILURE MODE-OUT OF TOLERANCE-DURING CAPCHE CHECK A NO-60 WAS INDICATED FOR THE ROLL INTEGRATOR PLUS PHASE A SHIFT. FAILURE COULD NOT BE TRACED TO AUTOPILOT GROUP.						
	CORRECTIVE ACTION-RECOMMENDED TO OPERATIONS THAT ALL CAPCHE INDICATED FAILED UNITS BE RETESTED ON PROGRAMMER CHECKOUT SET BEFORE REJECTION UNTIL CAPCHE VALIDATION AND SELLOFF IS COMPLETED.						
AUTOPILOT-ROUND-A/B PROGRAMMER	AA60-0048/P2-4CO-01-87 PROGRAMMER WIRING	COMPOSITE-B FACT	27D 800816	12	YES NO		894012
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING FACT TEST, THE NOISE CONC, BOOSTER SEPARATION, PVT, AND FIR E RETROCKETS SIGNALS WERE NOT GENERATED. PROBLEM DUE TO INTERMITTENT PROGRAMMER ARM-SAFE CIRCUITRY. SYSTEM EFFECT-OPERATION DOES NOT START. VEHICLE EFFECT-COMPOSITE RESCHEDULED.						
	CORRECTIVE ACTION-PROGRAMMER REPLACED. (CORRECTIVE ACTION ON PROGRAMMER UNKNOWN).						
AUTOPILOT-ROUND-A/B PROGRAMMER	DA209/B3-4MO-01-53 CONNECTOR	COMPOSITE-FRD/DPL	33D 800813	B-3	YES NO		897258
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. CONNECTOR INSTALLED IN WRONG RECEPTACLE. SYSTEM EFFECT-OPERATION DOES NOT START. PROGRAMMER FAILED TO RESET. VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULED.						
	CORRECTIVE ACTION-CONNECTOR REINSTALLED IN THE CORRECT RECEPTACLE.						
AUTOPILOT-ROUND-A/B PROGRAMMER	DA209/B3-4MO-02-33 PROGRAMMER	COMPOSITE-FRD/DPL	33D 800813	378B-3	YES NO	YES NO/C	
	FAILURE MODE-ERRATIC OPERATION. BAD PROGRAMMER. SYSTEM EFFECT-IMPROPER DISCRETE DISCRETE SIGNALS. NO-60 LOOP TEST. VEHICLE EFFECT-COMPOSITE DELAYED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PKI VENDOR PART NO	
CORRECTIVE ACTION-REPLACED PROGRAMMER.						
AUTOPLOT-ROUND-A/B PROGRAMMER	98-04-084 SWITCH	FAR 7-41011-993	600614	ETR	YES NO	897217 897893
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING CHECK OUT THERE WAS NO OUTPUT FROM THE B1 AND B2 PITCH AMPLIFIERS. CR FROM THE B1 YAW MINUS ROLL AND THE B2 PLUS ROLL SERVOAMPLIFIERS. SWITCHES 43 AND 45 WERE OPERATING INTERNITENTLY.						
CORRECTIVE ACTION-ALL PROGRAMMERS TESTED TO CULL OUT DEFECTIVE SWITCHES. NEW IMPROVED SWITCHES USED TO REPLACE DEFECTIVE ONES. NEW PROGRAMMERS WILL USE ONLY IMPROVED SWITCHES.						
AUTOPLOT-RXND-A/B PROGRAMMER	98-04-083 AMPLIFIER-SERVO	FAR 7-41011-977	950 800608	ETR	YES 60/C NO	897634
FAILURE MODE-OUT OF TOLERANCE-DURING MISSILE CHECKOUT THE V1 PITCH SERVO AMPLIFIER STATIC GAIN WAS 60 PER CENT ABOVE SPECIFICATION LIMITS. FIELD TESTS CONFIRMED FAILURE, BUT IT COULD NOT BE DUPLICATED. SEVERAL SCRAPS OF SOLDER WERE FOUND LOOSE IN THE SERVO AMPLIFIER SECTION ON THE CIRCUIT BOARD.						
CORRECTIVE ACTION-QUALITY CONTROL INSPECTION ALERTED TO ENSURE THAT PRINTED CIRCUIT BOARDS ARE CLEAN OF ALL LOOSE SOLDER SCRAPS.						
AUTOPLOT-ROUND-A/B PROGRAMMER	AE60-0386/FC-4CO-01-70	COMPOSITE-FACTORY	TOD 800528	FACTORY	YES 60/C NO	898333
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-VERNIER CUTOFF COMMAND OCCURRED SIMULTANEOUSLY WITH SUSTAINER CUTOFF COMMAND. CONDITION WAS CAUSED BY A PROCEDURE ERROR IN FAILING TO REQUIRE ACTIVATION OF THE PROPULSION TANK PRESSURIZATION SWITCH BEFORE THE SUSTAINER CUTOFF COMMAND.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.						
VEHICLE EFFECT-COUNTDOWN DELAYED. POST COMPOSITE TESTING REQUIRED.						
CORRECTIVE ACTION-PROCEDURE WAS CORRECTED TO CALL OUT FOR REQUIRED ACTIVATION OF THE PROPULSION TANK PRESSURIZATION SWITCH BEFORE THE SUSTAINER CUTOFF COMMAND.						
AUTOPLOT-ROUND-A/B PROGRAMMER	98-04-088 AMPLIFIER, SERVO, MECHANICAL	FAR 7-41011-977	950 800528	WTR	NO 60/C NO	
FAILURE MODE-OUT OF TOLERANCE-DURING MISSILE CHECKOUT THE YAW INTEGRATOR AND ROLL INTEGRATOR POSITIVE OUTPUT VOLTAGE READ LOW. IMPROPER SETTINGS ON THE STOPS OF THE MECHANICAL INTEGRATORS WERE FOUND DURING FAILURE ANALYSIS.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B PROGRAMMER	90-04-078	FAR 7-41011-977	900480	WTR	NO	60/C NO	897603
FAILURE MODE-OUT OF SPECIFICATION-APACHE TESTING AT THE SNA INDICATED SWITCHING SEQUENCES OUT OF ORDER. INVESTIGATION REVEALED THAT PROGRAMMER WAS CORRECT, BUT APACHE PROGRAMMING WAS IN ERROR.							
CORRECTIVE ACTION-APACHE PROBLEMS CLEARED UP.							
AUTOPILOT-ROUND-A/B PROGRAMMER	90-04-048 SWITCH	FAR 7-41011-977	800400	WTR	YES	60/C	893337
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PROGRAMMER WOULD NOT RESET TO ZERO TIME.							
CORRECTIVE ACTION-NEW VENDOR SOURCE SELECTED. 60/C QUALITY CONTROL PROCEDURES SET UP TO CULL OUT MARGINAL SWITCHES DURING ASSEMBLY.							
AUTOPILOT-ROUND-A/B PROGRAMMER	AARG-0019/PI-4CO-01-48 PROGRAMMER CIRCUIT	COMPOSITE-J FACT	480 800322	11	YES	CONVAIR NO	894017
FAILURE MODE-ERRATIC OPERATION. DURING TEST THE BOOSTER JETTISON LIGHT WENT OUT WHEN PRESSURIZE VERNIER TANKS LIGHT WENT ON. INVESTIGATION REVEALED OMISSION OF A DESIGN MODIFICATION FROM PROGRAMMER CIRCUIT.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. TEST INDICATOR LIGHTS SHOWED IMPROPER FUNCTION.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-THIS PROGRAMMER AND REPLACEMENT BOTH WRITTEN UP ON 18 AND RETURNED TO 30 29 MARCH 1986 FOR MODIFICATION.							
AUTOPILOT-ROUND-A/B PROGRAMMER	90-04-048 SWITCH	FAR 7-41011-977	800311	CTR	YES	NO	898994
FAILURE MODE-FAIL DURING OPERATION-DURING CHECKOUT NO OUTPUT WAS OBSERVED FROM THE PROGRAMMER SECTION OF THE CANISTER DURING SUSTAINER CUTOFF ENABLE MAINT TESTS. THE MOTOR CONTROL SWITCHES WERE FOUND TO HAVE HIGH VARIABLE CONTACT RESISTANCE.							
CORRECTIVE ACTION-A SECOND SOURCE VIEWER WAS SELECTED. A NEW FACTORY TEST PROCEDURE WAS INITIATED TO CULL OUT SWITCHES THAT WERE SUSPECT OF BEING ERRATIC.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B PROGRAMMER	98-04-030 CIRCUIT BOARD	FAR 7-41011-977	98D 600311		YES NO	60/C	897790
FAILURE MODE-ELECTRICAL OPEN. DURING VERNIER ENGINE ALIGNMENT CHECKOUT, VE ENGINE WAS DISPLACED 37 DEGREES. PRINTED CIRCUIT BOARD 7-41060 ETCHED PLATE CONDUCTOR WAS BURNED OPEN.							
CORRECTIVE ACTION-NONE-CAUSE OF OVERLOAD CURRENT DURING TESTING COULD NOT BE DETERMINED.							
AUTOPLOT-ROUND-A/B PROGRAMMER	90-04-036	FAR 07-41011-977	600335	WTR	NO NO	60/C	897793
FAILURE MODE-OUT OF TOLERANCE-DURING APCHE DECK 37 CHECKOUT, CARD 206 AND 220 INDICATED THAT THE PITCH PROGRAM WAS INTERMITTENT AND THAT THE SERVO STATIC GAIN WAS OUT OF TOLERANCE. NOT CONFIRMED, PROBLEM ATTRIBUTED TO APCHE.							
CORRECTIVE ACTION-APCHE PROBLEMS CLEARED UP.							
AUTOPLOT-ROUND-A/B PROGRAMMER	90-04-033	FAR 07-41011-977	600302	WTR	YES NO	60/C	897791
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- APCHE INDICATED SWITCH 1 WAS OUT OF TOLERANCE AND THAT PITCH PROGRAMMER WAS OUT OF TOLERANCE. PROGRAMMER FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-APCHE OPERATION SURVEILLANCE INITIATED TO ELIMINATE POSSIBLE PROBLEMS.							
AUTOPLOT-ROUND-A/B PROGRAMMER	90-04-039 GYRO-DISPLACEMENT	FAR 7-41013-919	600226	WTR	NO NO		897888
FAILURE MODE-DRIFT-DURING CAPCHE TESTS PITCH DISPLACEMENT GYROS WERE REJECTED FOR EXCESSIVE DRIFT. PROVED TO BE A C APCHE TEST PROCEDURAL ERROR.							
CORRECTIVE ACTION-PWR CAPCHE TEST PROCEDURE CORRECTED.							
AUTOPLOT-ROUND-A/B PROGRAMMER	FTAS968/PA-4CO-02-29	COMPOSITE-J FACT	29D 600216	ETR	NO NO		
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. A CONTINUOUS SUSTAINER AND VERNIER CUTOFF SIGNAL WAS RECEIVED AFTER A GUIDANCE VECO WAS INITIATED. INVESTIGATION REVEALED A 28 VOLT SIGNAL FROM THE UPPER STAGE WAS CONNECTED TO THE ATLAS CUTOFF CIRCUIT FROM THE PROGRAMMER.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. CONTINUOUS BECO AND VECO SIGNAL PREVENTED DETERMINATION OF RECEIPT OF FLIGHT CONTROL PROGRAMMER BACKUP VECO AND RANGE SAFETY MANUAL FUEL CUTOFF.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-NONE.							094439
CORRECTIVE ACTION-CIRCUITRY MODIFICATION MADE TO ELIMINATE CONTINUOUS 28 VOLT SIGNAL FROM UPPER STAGE.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-049 SWITCH	FAR 7-41011-977	950 80012	ETR	YES 60/C NO		091536
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. DURING SYSTEM TESTING PROGRAMMER WOULD NOT STOP AT COMPLETION OF SUB ROUTINE TWO.							
CORRECTIVE ACTION-SECOND VENDOR SOURCE SELECTED FOR SWITCHES. 60/C QUALITY CONTROL PROCEDURES INITIATED TO CULL SUBSTANDARD SWITCHES DURING SUBASSEMBLY MANUFACTURING.							
AUTOPILOT-ROUND-A/B PROGRAMMER	AERO-0039/4E-403-00-06	FLIGHT	80 800126	ETR	YES 60/C NO		091733
FAILURE MODE- FAIL TO OPERATE AT PRESCRIBED TIME. THE GUIDANCE WECO DISCRETE WAS GENERATED AND TRANSMITTED AT 270.4 SECONDS BUT FAILED TO INITIATE WECO POSSIBLY DUE TO AUTOPILOT PROGRAMMER MALFUNCTION.							
SYSTEM EFFECT-OPERATION TOO LONG. VERNIER ENGINES CONTINUED FIRING UNTIL BACK-UP SIGNAL FROM FLIGHT PROGRAMMER WAS ACCOMPLISHED AT 284.4 SECONDS.							
VEHICLE EFFECT-LATE VERNIER ENGINE CUTOFF. VEHICLE DID NOT PLACE 2/4 IN PROPER TRAJECTORY.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B PROGRAMMER	FTAS583/PI-4CO-03-42 SWITCH-ARM/SAFE	COMPOSITE-B FACT	420 800122	11 -300	YES NO		091405
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. ARM/SAFE SWITCH WAS LOCKED IN THE ARMED POSITION. THIS WAS FOUND DURING A 1-5 MINUTE HOLD CALLED AT 7-16 SECONDS.							
SYSTEM EFFECT-ERRATIC OPERATION. ARM/SAFE SWITCH LOCKED IN ARMED POSITION.							
VEHICLE EFFECT-COMPOSITE DELAYED. POSSIBLE PORTION OF 9 MINUTE HOLD							
CORRECTIVE ACTION-PROGRAMMER REPLACED AFTER TEST.							
AUTOPILOT-ROUND-A/B PROGRAMMER	FTAS583/PI-4CO-03-42	COMPOSITE-B FACT	420 800122	ETR -100	YES 60/C NO		
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PROGRAMMER WOULD NOT RESET. PROGRAMMER STARTED AT MISSILE TO INITIAL POWER BECAUSE IT WAS ARMED (LOCKED IN ARM DUE TO EARLIER PROBLEM). PROGRAMMER WOULD STOP BUT WOULD NOT RESET.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SIZE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	SYSTEM EFFECT-ERRATIC OPERATION. PROGRAMMER WOULD NOT RESET. VEHICLE EFFECT-COMPOSITE DELAYED. 8 MINUTE HOLD AND 4 MINUTE RECYCLE. CORRECTIVE ACTION-ESTABLISH PROGRAMMER ZERO AND PROCEED. PROGRAMMER WAS REPLACED AFTER TEST DUE TO ARM/SAFE SWITCH PROBLEM.						891404
AUTOPILOT-ROUND-A/B PROGRAMMER	AC60-0001/31-410-C8-36	CAPTIVE	360 600108	3YC 231.73	YES NO	60/C	898910
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. AN INTERLOCK GROUND WAS NOT REMOVED FROM THE FLIGHT PROGRAMMER CONTROL SIGNAL CIRCUIT BEFORE THE TEST. AS A RESULT THE PROGRAMMER COULD NOT SEND A PRESSURIZE VERNIER TANKS SIGNAL. SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. PRESSURIZE VERNIER TANKS SIGNAL COULD NOT BE SENT. VEHICLE EFFECT-PRIMATURE VERNIER ENGINE SHUTDOWN. VERNIER SHUTDOWN OCCURRED AT SECO WHEN THE ENGINE TANKS WERE NOT PRESSURIZED. CORRECTIVE ACTION-REMOVED INTERLOCK FROM PROGRAMMER.						898237
AUTOPILOT-ROUND-A/B PROGRAMMER	FTAG392/PS-4CO-01-31 SWITCH	COMPOSITE-B FACT	310 591204	13	YES NO		
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE NOSE CONE SEPARATION SIGNAL WAS NOT RECEIVED AT THE FUSE IN THE TEST BOX. SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. THE FUSE IN THE NOSE CONE SIMULATOR BOX DID NOT BLOW INDICATING NO RECEIPT OF THE NOSE CONE SEPARATION SIGNAL. VEHICLE EFFECT-NONE. CORRECTIVE ACTION-ON A RERUN IMMEDIATELY AFTER THE FACT THE FUSE BLEW NORMALLY. THE NOSE CONE WAS REMOVED AND A BAR O-SWITCH WAS REPLACED WITH TWO SIMILAR SWITCHES IN PARALLEL. THE NOSE CONE WAS REINSTALLED ON THE VEHICLE AND FOUR SETS OF FUSES WERE BLOWN NORMALLY. NO FURTHER ACTION TAKEN.						898338
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-028 SWITCH	PAR 7-41011-981	13D 591124	1-2	YES NO		
	FAILURE MODE-FAIL DURING OPERATION. PROGRAMMER STOPPED IN SUBROUTINE THREE DURING TESTING DUE TO FAILURE OF SWITCH 8 371P AND 331. CORRECTIVE ACTION-SWITCHES OPERATED ERRATICALLY WHEN TESTED. SWITCH VENDOR QUALITY CONTROL IMPROVED. ACTION TO SELECT SECOND SOURCE INITIATED. 60/C SUBASSEMBLY QUALITY CONTROL IMPROVED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-028 RELAY	FAR 7-41011-979	100 991103	ETR 150	YES NO		898533
FAILURE MODE-FAIL DURING OPERATION. PROGRAMMER STOPPED AT 150 SECONDS DURING SYSTEM TESTING DUE TO DEFECTIVE RELAY K354.							
CORRECTIVE ACTION-PROGRAMMER RELAY VENDOR REQUIREMENTS HAVE BEEN INTENSIFIED AND QUALITY CONTROL ON THE SUB- ASSEMBLIES IMPROVED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-023 RELAY	FAR 7-41011-977	220 991102	ETR 180	YES NO		898534
FAILURE MODE-FAIL DURING OPERATION. DURING INTEGRATED MISSILE GUIDANCE AND AUTOPILOT SYSTEM CHECKS AT AIR PROGRAMMER R STOPPED AT 180 SECONDS. FAILURE CAUSED BY DEFECTIVE RELAY, K374.							
CORRECTIVE ACTION-VENDOR REQUIREMENTS FOR THE PROGRAMMER RELAYS WERE TIGHTENED. VENDOR QUALITY CONTROL PROCEDURES WERE IMPROVED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	99-04-024 SWITCH	FAR 7-41011-973	991102	ETR	YES NO		898533
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING CONTINUITY CHECKS WIRE INSULATION BURNED OFF OF SWITCH DUE TO SHORT IN PROGRAMMER SECTION.							
CORRECTIVE ACTION-PROGRAMMER SUBASSEMBLY QUALITY CONTROL INTENSIFIED. VENDOR MANUFACTURING PROCESSES AND QUALITY CONTROL IMPROVED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-019 SWITCH	FAR 7-41011-987	8C 991014	ETR	YES 60/C NO		898542
FAILURE MODE-FAILED DURING OPERATION. PROGRAMMER STOPPED AT START OF SUBROUTINE 3 DUE TO 8371 AND 8384 FAILURE OF 3 SWITCHES 8371 AND 8384.							
CORRECTIVE ACTION-VENDOR SWITCH AND RELAY QUALITY CONTROL PROCEDURES TIGHTENED TO IMPROVE INSPECTION. SUSPECTED SWITCHES REMOVED FROM ALL COMPLETED ASSEMBLIES.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VEHICLE NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B PROGRAMMER	98-04-018 SWITCH	FAR 7-41011-961	581213	ETR	YES	5D/C NO	893541
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PROGRAMMED EVENTS WOULD NOT OCCUR AT PRESCRIBED TIME.							
CORRECTIVE ACTION-MANUFACTURING PROCESSES AND QUALITY CONTROL PROCEDURES WERE IMPROVED. ALL POTENTIALLY IMPERIOR SM ITCHES WERE REMOVED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A2M-27-359/FC-4CO-01-29	COMPOSITE-FACTORY	2SD 590925	FACTORY	YES NO		893339
FAILURE MODE-FAIL DURING OPERATION. MIDWESTERN NO.2 DISPLAYED A ONE EIGHTH INCH SPINE SHORTLY AFTER BOOSTER CUTOFF.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A2C-27-077/P4-403-00-10 PROGRAMMER SWITCH NO 55	FLIGHT	1C0 590909	14 136	YES YES		893767
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. POSSIBLE FAILURE OF PROGRAMMER SWITCH NUMBER 55 TO OPERATE A PRESC RIBED TIME.							
SYSTEM EFFECT-OPERATION DOES NOT START. NO BOOSTER SECTION JETTISON SIGNAL.							
VEHICLE EFFECT-IMPROPER TRAJECTORY. THE BOOSTER SECTION DID NOT SEPARATE FROM THE VEHICLE. AS A RESULT OF THE ADDED WEIGHT OF THE BOOSTER SECTION, IMPACT OCCURRED APPROXIMATELY 500 NAUTICAL MILES SHORT OF THE PLANNED RANGE.							
CORRECTIVE ACTION-THE OUTPUT OF THE PROGRAMMER SWITCH WILL BE INSTRUMENTED ON FUTURE FLIGHTS.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A2M-27-515/FC-4CO-05-28	COMPOSITE-FACTORY	2SD 350825	FACTORY	NO NO	5D/C	893353
FAILURE MODE-FAIL DURING OPERATION. DIRTY TEST PROGRAMMER TAPES CAUSED A PREMATURE VERNIER CUTOFF INDICATION.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. DIRTY PROGRAMMING TAPES CAUSED PREMATURE VECO INDICATION.							
VEHICLE EFFECT-COMPOSITE DELAYED OR RESCHEDULED. RE-RUN OF COMPOSITE MADE.							
CORRECTIVE ACTION-THE TEST TAPES WERE CLEANED AND SATISFACTORY OPERATION OBTAINED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-ROUND-A/B PROGRAMMER	AZN-27-284/FC-4CO-01-27	COMPOSITE-FACTORY	270 590715	FACTORY	YES NO	YES NO
<p>FAILURE MODE-FAIL DURING OPERATION. THE PITCH PROGRAM TRACE ON MIDWESTERN RECORDING NO. 2 INDICATED A MOMENTARY DRO POUT.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION. MOMENTARY DROP OUT WOULD CAUSE INTERRUPTION OF PITCH PROGRAM.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. A PARTIAL COMPOSITE RETEST WAS PERFORMED.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPLOT-ROUND-A/B PROGRAMMER	FTAS061/PI-4CO-02-11	COMPOSITE-B FACT	11D 590711	ETR 0	NO NO	NO NO
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. FLIGHT PROGRAMMER DID NOT RESPOND TO STAGING DISCRETE SIGNAL BE'AU SE STAGING SWITCH HAD NOT BEEN ENABLED BY PROGRAMMER. STAGING SEQUENCE WAS INITIATED BY THE BACKUP SIGNAL. THE PROBL EM OCCURRED DUE TO THE LATE EJECTION OF PI001 AND SUBSEQUENT LATE PROGRAMMER START.</p> <p>SYSTEM EFFECT-OPERATION STARTS TOO LATE. DUE TO LATE UNBILICAL PI001 EJECT THE FLIGHT PROGRAMMER STARTED 5 SECONDS LATE.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-NONE.</p>						
AUTOPLOT-ROUND-A/B PROGRAMMER	AZN-27-288/FC-4CO-01-25	COMPOSITE-FACTORY	24D 590710	FACTORY	NO NO	NO NO
<p>FAILURE MODE-ERRATIC OPERATION-SANDORH RECORDER MONITORING THE PITCH PROGRAM OUTPUT AND YAW FEEDBACK TRANSDUCER OUT PUT WAS ERRATIC THRU OUT THE TEST. THIS WAS TRACED TO A FAULTY PREAMPLIFIER IN THE CHECKOUT EQUIPMENT.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION-ERRATIC OUTPUT OF PROGRAMMER PROVED TO BE FAULTY GSE.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED COMPOSITE RE-TEST PERFORMED.</p> <p>CORRECTIVE ACTION-NOT KNOWN.</p>						
AUTOPLOT-ROUND-A/B PROGRAMMER	AZN-27-287/FC-4CO-01-24	COMPOSITE-FACTORY	24D 590624	POTENTIOMETER	YES NO	YES NO
<p>FAILURE MODE-ERRATIC OPERATION-THE PITCH PROGRAM INDICATED MOMENTARY DROPOUTS. THE PITCH PROGRAMMER POTENTIOMETER WA S DIRTY.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION-THE PITCH PROGRAM HAD SEVERAL DROPOUTS. TRACED TO DIRTY POTENTIOMETER.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTS DEMONSTRATED SATISFACTORY SYSTEM OPERATION.							898384
CORRECTIVE ACTION-THE PITCH PROGRAM POTENTIOMETER WAS CLEANED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	94-04-008 TRANSFORMER	PAR 7-41015-889	3D 590315	ETR NO	YES		898229
FAILURE MODE-FAILED DURING OPERATION. TRANSFORMERS T102 AND T103 WERE BURNED OPEN.							
CORRECTIVE ACTION-FINAL CLEANUP INSPECTION INITIATED ON ALL ELECTRONIC CANISTERS. GYRO CANISTERS OPENED FOR INSPECTION FOLLOWING PRODUCTION VIBRATION TESTING.							
AUTOPILOT-ROUND-A/B PROGRAMMER	A24-27-255/FC-4CO-01-19	COMPOSITE-FACTORY	19D 590312	FACTORY 123	NO		894335
FAILURE MODE-FAIL DURING OPERATION. AT ABOUT 123 SECONDS THE BOOSTER AND VERNIER ENGINES INDICATED POSITIVE ROLL BI AS AND NEGATIVE ROLL TORQUING WHEN POSITIVE AND NEGATIVE ROLL BIAS WAS EXPECTED. THE FLIGHT CONTROL TEST PROGRAMMER TAPES HAD BEEN INCORRECTLY PUNCHED.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-NONE. NO RETEST WAS REQUIRED SINCE THE ENGINES RESPONDED CORRECTLY TO THE ERRONEOUS SIGNALS RECEIVED							
CORRECTIVE ACTION-UNKNOWN. TEST PROGRAMMER TAPES WERE PROBABLY REPLACED.							
AUTOPILOT-ROUND-A/B PROGRAMMER	ZC-7-220/PE-301-00-07 PROGRAMMER MICROSWITCH	FLIGHT	7C 590318	12	YES YES		898691
FAILURE MODE-FAIL DURING OPERATION. POSSIBLE FAILURE OF BOOSTER CUTOFF MICROSWITCH NO. 41 IN PROGRAMMER MAY HAVE CAUSED PREMATURE BOOSTER SHUTDOWN. CAUSE OF POSSIBLE SWITCH FAILURE UNKNOWN.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. POSSIBLE MICROSWITCH FAILURE MAY HAVE CAUSED PREMATURE GENERATION OF BECO 8 SIGNAL.							
VEHICLE EFFECT-PREMATURE BOOSTER ENGINE CUTOFF. PREMATURE BECO RESULTED IN LOSS OF VEHICLE STABILITY AND SUBSEQUENT MISSION FAILURE.							
CORRECTIVE ACTION-UNKNOWN.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B PROGRAMMER	ZC-7-220/P2-3BN-03-07 FLIGHT CONTROL PROGRAMMER	COMPOSITE-J FACT	7C 580304	ETR	YES NO	CONVAIR	981598
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PROGRAMMER DID NOT FUNCTION PROPERLY. BOOSTER CUTOFF AND R/V SEPARATION SIGNALS NOT RECEIVED DURING TEST. NO FURTHER DETAILS AVAILABLE.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. BECO AND R/V SEPARATION SIGNALS NOT RECEIVED.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>							
AUTOPILOT-ROUND-A/B PROGRAMMER	FTA4607/P2-3BN-04-3	COMPOSITE-B FACT	5C 590218	ETR -600	NO NO		983423
<p>FAILURE MODE-PREATURE OPERATION. DURING THE COUNTDOWN UNPLANNED SUSTAINER CUTOFF (SECO) SIGNAL APPEARED EACH TIME THE AIRBORNE PROGRAMMER ENABLED THIS FUNCTION. THIS RESULTED FROM CONDITIONS (INADVERTENTLY ESTABLISHED IN THE BLOCKHOUSE. THIS POSSIBILITY WAS CREATED BY A CHANGE IN MISSILE HARNESSING.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. UNPLANNED SUSTAINER CUTOFF SIGNALS OCCURRED EACH TIME THE PROGRAMMER ENABLED THESE SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. 40 MINUTE HOLD AT T-10.</p> <p>CORRECTIVE ACTION-REPLACE SERVO CANISTER (WHICH CONTAINS PROGRAMMER) AND GROUND WIRING WAS CORRECTED TO PRECLUDE THIS RECURRENCE.</p>							
AUTOPILOT-ROUND-A/B PROGRAMMER	FTA4607/P2-3BN-04-3 SWITCH	COMPOSITE-B FACT	5C 590218	12	YES NO		983372
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE NOSE CONE SEPARATION CHARGE WAS NOT BLOWN BECAUSE OF FAILURE OF PROGRAMMER SWITCH TO (JETTISON NOSE CONE) OR SWITCH 90 (ENABLE NOSE CONE SEPARATION). THESE SWITCHES ARE IN SERIES AND BOTH MUST OPERATE TO DETONATE CHARGE.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.</p> <p>VEHICLE EFFECT-NONE. THE CAPABILITY OF THE AUTOPILOT TO PROVIDE THIS FUNCTION HAD BEEN PREVIOUSLY DEMONSTRATED.</p> <p>CORRECTIVE ACTION-THE SERVO CANISTER (PROGRAMMER) WAS REPLACED AFTER TEST.</p>							
AUTOPILOT-ROUND-A/B PROGRAMMER	FTA4413/P1-E01-00-10	FPF	108 581209	ETR -4800	NO NO		
<p>FAILURE MODE-PREATURE OPERATION. DURING THE LOOP TEST SUSTAINER CUTOFF WAS GENERATED AT ENABLE TIME AND SUBROUTINE THREE WAS STARTED. THIS WAS CAUSED BY THE PRESENCE OF A GROUND TEST DISCRETE WHICH WAS LOCKED IN DUE TO A PECULIARITY OF THE GROUND CIRCUITRY.</p>							

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SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. AN EARLY BECO AND EARLY ENTRANCE INTO SUBROUTINE THREE OCCURRED DURING THE LOOP TEST.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-ROUND-A/B PROGRAMMER	2N-7-634/FC-3CO-02-03	COMPOSITE-FACTORY 3C 7-41011	361125	FACTORY	NO	60/C
FAILURE MODE-FAIL DURING OPERATION. A SWITCH 0.5V AMPLITUDE OF 9 MILLISECOND DURATION OCCURRED ON ROLL PROGRAM OUTPUT.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNAL.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-ROUND-A/B PROGRAMMER	2N-7-648/FC-3CO-01-04 SWITCH	COMPOSITE-FACTORY 4C 361125			YES NO	
FAILURE MODE-FAIL DURING OPERATION-THE VERNIER ENGINES, IN THE YAW AXIS, INDICATED ABRUPT SHIFTS UPON VERNIER ACTION AT STAGING. THE PROBLEM WAS THE RESULT OF A FAULTY SWITCH 33 IN SUBROUTINE NO. 1.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. FAULTY SWITCH CAUSED UNEXPECTED SIGNALS TO BE TRANSMITTED TO THE VERNIER ENGINE ACTUATOR.						
VEHICLE EFFECT-COMPOSITE RESCHEDULE.						
CORRECTIVE ACTION-SUBROUTINE NO. 1 WAS REPLACED AND THE PROGRAMMER REINSTALLED ON THE MISSILE. COMPONENT, SYSTEM, AND COMPOSITE LEVEL RETESTING WAS PERFORMED.						
AUTOPILOT-ROUND-A/B PROGRAMMER	2N-7-639/FC-2CO-01A-13 SWITCH	COMPOSITE-FACTORY 13B 7-41011	360916	FACTORY	YES NO	7-41011
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. PROGRAMMER SWITCHES 1, 51, 53, AND 84 FAILED TO OPERATE DURING THE TEST.						
SYSTEM EFFECT-OPERATION DOES NOT START. FAILURE OF SWITCHES TO OPERATE PREVENTS SUBROUTINES STARTING.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED.						
CORRECTIVE ACTION-PROGRAMMER WAS REMOVED AND REPAIRED. SYSTEM AND COMPOSITE FIX TESTS WERE PERFORMED.						

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AUTOPILLOT-ROUND-A/B PROGRAMMER	2N-7-636/FC-2CO-01A-13 RESISTOR	COMPOSITE-FACTORY	138 380516	FACTORY NO	7-41011 NO	099285
<p>FAILURE MODE-FAIL DURING OPERATION-PITCH PROGRAM OUTPUT WAS 30 PCT LOW THROUGHOUT THE TEST DUE TO A FAULTY 20K RESISTOR IN THE PROGRAMMER OUTPUT CIRCUITRY.</p> <p>SYSTEM EFFECT-NONE. SYSTEM WAS ACCEPTED AS IS SINCE ONLY A QUALITATIVE CHECK OF PITCH PROGRAM WAS REQUIRED.</p> <p>VEHICLE EFFECT-NONE (REF. ENGINEERING MEMO 58-547-8-28).</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPILLOT-ROUND-A/B PROGRAMMER	2C-7-095/P4-102-00-13 VERNIER ENGINE FEEDBACK TRANSDUCER	FLIGHT	13A 380207	14 96.8	YES NO	099204
<p>FAILURE MODE-SHORT. IT IS CONCLUDED THAT ONE OF THE VERNIER ENGINE FEEDBACK TRANSDUCERS SHORTED OUT DUE TO EXCESSIVE HEAT CAUSING A DECREASE IN AUTOPILLOT FEEDBACK EXCITATION. THIS RESULTED IN A 64 IN CHANGE WHICH CAUSED AUTOPILLOT IN STABILITY.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. AT 106.4 SECONDS AFTER LIFTOFF A DEFINITE DISCONTINUITY WAS INDICATED BY ENGINE POSITION TRACES, FOLLOWED BY DIVERGENT OSCILLATIONS IN ALL THREE PLANES. BY 110.9 SECONDS ALL ENGINES WERE LIMITING AGAINST THEIR MECHANICAL STOPS.</p> <p>VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. MISSILE BREAKUP OCCURRED AT 156 SECONDS.</p> <p>CORRECTIVE ACTION-COMPLETE SEAL AT FORWARD PORTION OF FAIRING, ALUMINUM SHIELD TO COVER END OF VERNIER FAIRING, FEEBACK TRANSDUCER SOLDERED PLUG REPLACED WITH PERMANENT SPLICED, TRANSDUCER WIRING SLEEVED IN FIBERGLASS AND ROUTED THROUGH CONDUIT, ALL VERNIER ENGINE AREA WIRING WRAPPED IN ALUMINUM FOIL, NICHROME WILL REPLACE WIRING ON TWO EXCITATIONS LEADS TO THE TWO VERNIER ENGINE FEEDBACK TRANSDUCERS. (REPORT 2C-7-096).</p>						
AUTOPILLOT-ROUND-A/B PROGRAMMER	EN-765/1A, 116-8P5-02A FLIGHT CONTROL PROGRAMMER	CAPTIVE	2A 571031	EDWARDS 130.19	YES NO	099317
<p>FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. FAILED TO INITIATE BOOSTER CUTOFF.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.</p> <p>VEHICLE EFFECT-LATE BOOSTER ENGINE CUTOFF.</p> <p>CORRECTIVE ACTION-NONE, BACKUP CUTOFF DISCRETE SUPPLIED BY ENGINE TIMER.</p>						
AUTOPILLOT-ROUND-A/B PROGRAMMER	EN-757/1 A-115-8P4 AUTOPILLOT PROGRAMMER	CAPTIVE	2A 571027	EDWARDS 1A 127	YES NO	099317
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE PROGRAMMER FAILED TO INITIATE CUTOFF AT THE PRESCRIBED TIME DURING BOOSTER OPERATION.</p>						

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<p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. THE PROGRAMMER FAILED TO SEND THE DISCRETE CUTOFF.</p> <p>VEHICLE EFFECT-LATE BOOSTER ENGINE CUTOFF. THE BOOSTER OPERATION DID NOT CUTOFF UNTIL THE BACK-UP ENGINE TIMER TIME D OUT.</p> <p>CORRECTIVE ACTION-NONE.</p>						
AUTOPLOT-ROUND-A/B PROGRAMMER	EN-433/106.0-4	CAPTIVE	3A 370387	B1	YES NO	
<p>FAILURE MODE-OUT OF SPECIFICATION. THE PROGRAMMER OUTPUT SIGNAL WAS APPROXIMATELY 75 PCT OF EXPECTED OUTPUT.</p> <p>SYSTEM EFFECT-NONE.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPLOT-ROUND-A/B PROGRAMMER	CT-99-04-233 BINARY ASSEMBLY	PAR 27-41498-1	950128		YES 50/C NO	
<p>FAILURE MODE-STRUCTURAL. INTERCONNECTING LEADS WERE REVERSED.</p> <p>CORRECTIVE ACTION-RECOMMEND CAUTION TO COGNIZANT FACTORY PERSONNEL TO ASSURE LEADS ARE PROPERLY CONNECTED.</p>						
AUTOPLOT-ROUND-A/B GYRO PACKAGE	B3-4MO-02-66 GYRO, SHRD	COMPOSITE-FRD/DPL	66D 650324	B3	YES 50/C NO	
<p>FAILURE MODE-OUT OF SPECIFICATION. RED LIGHT INDICATION ON THE LAUNCH ANALYST PANEL THAT SHRD WAS NO-60.</p> <p>SYSTEM EFFECT-OPERATION TOO LOW.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED.</p> <p>CORRECTIVE ACTION-GYRO CAN BE REPLACED.</p>						
AUTOPLOT-ROUND-1/B GYRO PACKAGE	B3-4MO-01-66 PITCH DISPLACEMENT GYRO	COMPOSITE-FRD/DPL	66D 650321	B3	YES NO	
<p>FAILURE MODE-OUT OF SPECIFICATION. SIGNAL TEST FAIL RED LIGHT DURING LOOP TEST ON LAUNCH ANALYST PANEL.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS DUE TO IMPROPER GYRO GAIN.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRE OTM	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COUNTDOWN ABORTED.							893241
CORRECTIVE ACTION-REPLACED GYRO CAN.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	60/CBKF85-087 GYRO-DISPLACEMENT	COUNTDOWN 27-75041-001	1500 650402	B1	YES NO		896430
FAILURE MODE-FAIL DURING OPERATION.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS FAULTY PITCH GYRO.							
VEHICLE EFFECT-COUNTDOWN ABORTED.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	60/CBKF85-087	COUNTDOWN 27-75041-001	1500 650402	B1	YES NO		896428
FAILURE MODE-OUT OF SPECIFICATION. AN AUTOPILOT GYRO WAS NOT RUNNING AT PROPER SPEED AND A SMDR FAULT SIGNAL WAS RECEIVED ON THE LAP.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS RESULTED IN A NO-GO LOOP TEST.							
VEHICLE EFFECT-COUNTDOWN DELAYED.							
CORRECTIVE ACTION-REPLACED GYRO CANISTER.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-45177 PITCH DISPLACEMENT GYRO	FAR 7-41015-967	1720 631205	FACTORY	YES NO		890786
FAILURE MODE-OUT OF SPECIFICATION. GYRO PACKAGE FAILED AT THE GO/C SUPPORT DEPOT WHEN IT HAD NO SMDR OUTPUT. SUBSEQUENT TESTING REVEALED THAT THE PITCH DISPLACEMENT GYRO (KEARFOOT S/N 3929AB65, GO/C P/N 7-04250-3) SPIN-MOTOR WAS RUNNING BELOW SYNCHRONOUS SPEED DUE TO EXCESSIVE FRICTION IN THE SPIN-MOTOR BEARING.							
CORRECTIVE ACTION-KEARFOOT INITIATED USING BETTER LUBRICANT FOR MOTOR BEARINGS. THE BEARINGS WITH NEW LUBRICANT NOW DESIGNATED IN GYROS WITH VENDOR SERIAL NUMBERS CONTAINING THE LETTER C.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-JA-04-4542-F SMDR TRANSISTOR 8-1	FAR 27-43186-3	1720 631126	FACTORY	YES NO		
FAILURE MODE-FAIL DURING OPERATION. THERE WAS A NO-GO OUTPUT FROM THE SPIN-MOTOR ROTATION-DETECTOR (SMDR) INDICATING A FAILURE OF THE AUTOPILOT GYROSCOPE CANISTER. ANALYSIS INDICATED THAT SMDR SUBASSEMBLY 2 HAD A LOW OUTPUT CAUSED BY HIGHER THAN NORMAL LEAKAGE CURRENT FROM BASE TO COLLECTOR OF TRANSISTOR 8-1.							

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CORRECTIVE ACTION-NONE. THIS EXACT CAUSE OF THE EXCESSIVE LEAKAGE CURRENT COULD NOT BE LEARNED.						991342
AUTOPILOT-ROUND-A/B GYRO PACKAGE	NZ-89-04-4470-F SHRD	FAR 27-44534-801	631031	FACTORY	YES GO/C NO	993460
FAILURE MODE-OUT OF TOLERANCE. GYROSCOPE PACKAGE WAS REJECTED FOR A SHRD NO-GO INDICATION. FAILURE ANALYSIS FOUND THE SHRD OUTPUT FROM THE PITCH DISPLACEMENT GYRO (P/N 7-04230-803) AND THE ROLL-RATE GYRO (P/N 27-04574-3) TO BE LOW. THIS WAS CAUSED BY DEMAGNETIZATION RESULTING FROM EXTRANEIOUS VOLTAGE TRANSIENTS.						
CORRECTIVE ACTION-NONE. EXACT CAUSE OF EXTRANEIOUS VOLTAGE NOT FOUND.						993460
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-89-04-4460-F CAPACITOR GROUP	FAR 7-41609-3	630927	FACTORY	YES NO	
FAILURE MODE-OPEN (ELECT.). THE CAPACITOR GROUP WAS 18/0 WHEN DURING A POST ENCAPSULATION TEST, IT WAS REPORTED TERMINALS 3 TO 4 AND 5 TO 8 INDICATED OPEN. THE REPORTED FAILURE WAS CONFIRMED. THE CAUSE COULD NOT BE DETERMINED AS THE WIRING AND TERMINALS WERE DAMAGED DURING DEPOTTING.						
CORRECTIVE ACTION-FACTORY AND INSPECTION PERSONNEL WERE INFORMED OF THIS FAILURE ANALYSIS. NO FURTHER ACTION TAKEN.						991461
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-JA-04-4508-F TORQUE AMPLIFIER	FAR 7-41724-3	630919	FACTORY	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. THE TORQUE AMPLIFIER REPORTEDLY FAILED AT 60/C PRODUCT SUPPORT CENTER DUE TO A HIGH OUTPUT. SUBSEQUENT TESTING REVEALED THAT AN OSCILLATION SIGNAL RIDING THE OUTPUT SIGNAL CAUSED THE EXCESSIVE OUTPUT. THE OSCILLATIONS WERE ISOLATED TO THE AMPLIFIER'S FEEDBACK CIRCUIT, HOWEVER, DEPOTTING RESULTED IN THE DESTRUCTION OF THE COMPONENTS. THIS PREVENTED THE CAUSE OF FAILURE FROM BEING IDENTIFIED.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION COULD BE TAKEN SINCE THE CAUSE OF THE FAILURE WAS NOT FOUND.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-JA-04-4508-F TORQUE AMPLIFIER	FAR 7-41724-3	630918	FACTORY	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. THE TORQUE AMPLIFIER REPORTEDLY FAILED AT 60/C PRODUCT SUPPORT CENTER WHEN IT WAS FOUND TO HAVE NO OUTPUT. THE FAILURE WAS CONFIRMED DURING SUBSEQUENT TESTING. THE CAUSE OF FAILURE WAS NOT DETERMINED, HOWEVER, SINCE SOME OF THE INTERNAL COMPONENTS WERE INADVERTENTLY DESTROYED DURING DEPOTTING.						PAGE 0036

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CORRECTIVE ACTION-NONE.							091104
AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-98-04-4423-F SRRD-TRANSISTOR	FAR 27-43563-1	030914	FACTORY	YES NO		093402
FAILURE MODE-ELECTRICAL SHORT. SRRD CIRCUIT BOARD HAD NO OUTPUT ON CHANNEL-1. TRANSISTOR 8-1 WAS FOUND PARTIALLY SHORTED THE CONDITION OF THE TRANSISTOR COULD ONLY HAVE BEEN CAUSED BY EXTRANEOUS VOLTAGES APPLIED TO THE INPUT OF SUB ASSEMBLY-1. AN EFFORT TO DISCOVER SOURCE OF EXTRANEOUS VOLTAGE WAS WITHOUT SUCCESS.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN AS SOURCE OF VOLTAGE WAS NOT FOUND.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	CT-99-04-095 RATE GYRO SRRD	FAR 27-04374-3	030902	FACTORY	YES GDC NO JRS101A2		090989
FAILURE MODE-OUT OF TOLERANCE. THIS RATE GYROSCOPE REPORTEDLY FAILED WHEN IT HAD LOW SRRD OUTPUT. THE GYROSCOPE HAD A LOW SPIN MOTOR ROTATION DETECTOR OUTPUT. TESTS INDICATED A DEMAGNETIZED SPIN MOTOR ROTATION DETECTOR MAGNET. THE SRRD MAGNET WAS DEMAGNETIZED BY INADVERTENT APPLICATION OF VOLTAGE TO THE SRRD OUTPUT PINS. THIS WAS MONEYWELL GYRO.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE UNKNOWN.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4417F DISPLACEMENT GYRO	FAR 7-04250-803	030904	FACTORY	YES REARFOTT NO		093387
FAILURE MODE-OPEN. THE DISPL. GYRO WAS IR/D WHEN IT WAS FOUND TO HAVE AN OPEN HEATER CIRCUIT. A CONTINUITY CHECK CONFIRMED THE REPORTED FAILURE. UNIT WAS RETURNED TO VENDOR WHERE DISASSEMBLY SHOWED PINS 4 AND 9 INTERCHANGED. IT WAS ALSO NOTED THE HANDPRINTED NOS. 4 AND 9 WERE ALMOST IDENTICAL IN APPEARANCE.							
CORRECTIVE ACTION-VENDOR NOW USING STANDARD MARKING TECHNIQUES.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4418-F DISPLACEMENT GYRO	FAR 7-04250-803	197-D 030630	FACTORY	YES REARFOTT NO		
FAILURE MODE-DRIFT. THE DISPLACEMENT GYRO WAS IR/D FOR EXCESSIVE DRIFT. EXCESSIVE DRIFT WAS CAUSED BY MASS UNBALANCE AT THE RATE OF -.9.08 DEGREES/HOUR. TOLERANCE IS 9.0 DEG/HR. THE CAUSE OF MASS UNBALANCE WAS NOT FOUND.							

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CORRECTIVE ACTION-SINCE THE EXACT CAUSE OF MASS UNBALANCE WAS NOT FOUND, NO CORRECTIVE ACTION CAN BE TAKEN.							893386
AUTOPILOT-ROUND-A/B GYRO PACKAGE	3P-99-04-4403-F MAGNETIC AMPLIFIER CIRCUIT BOARD	FAP 60-07800-021	63029	FACTORY	YES MAGNETIC CONTR	NO CLS	893289
FAILURE MODE-ELECTRICAL OPEN. THE TEMPERATURE CONTROL UNIT WAS IN/D FOR AN OPEN CIRCUIT BETWEEN PINS 6 AND 7, AND 7 AND 12. WHILE DEPORTING THE UNIT IT WAS DISCOVERED THERE WAS NO SOLDER BETWEEN PIN 7 AND THE GROUND WIRE COMMON TO PINS 2,7,8, AND 13. (SEE PHOTOS 180338 AND 180348).							
CORRECTIVE ACTION-VENDOR INITIATED VISUAL INSPECTION AFTER FINAL ASSY. AND BEFORE POTTING.							897464
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-19-04-4208F AMPLIFIER	FAR 7-41019-987	154D 630326	FACTORY	NO	NO	
FAILURE MODE-OUT OF TOLERANCE. LOW YAW GYRO SIGNAL AMPLIFIER OUTPUT FAILURE COULD NOT BE CONFIRMED IN GYRO. TROUBLE WAS BELIEVED TO BE DUE TO TOLERANCE BUILDUP IN THE SYSTEM.							
CORRECTIVE ACTION- TIGHTEN CONTROL OVER KNOWN BUILDUP OF TOLERANCES. PERMISSION REQUESTED FROM CUSTOMER TO IMPROVE SYSTEM TESTS.							893244
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4200 DISPLACEMENT GYRO SHRO	FAR 7-04230-3	630321	FACTORY	YES REARFOIT	NO	
FAILURE MODE-ELECTRICAL OPEN. GYRO HAD NO SHRO OUTPUT DUE TO AN OPEN SHRO WINDING CAUSED BY APPLICATION OF HIGH VOL TAGE.							
CORRECTIVE ACTION-NONE. REASON FOR APPLICATION OF HIGH VOLTAGE WAS NOT LEARNED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A0163-0046/83-401-00-102 GYRO-DISPLACEMENT	FLIGHT	1020 630309	8-3 0	YES	NO	
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE PITCH DISPLACEMENT GYRO SPIN MOTOR WAS NOT ROTATING OR WAS R OTATING VERY SLOWLY. THIS CONDITION APPEARS TO HAVE EXISTED DURING THE TILT-THE-CAN-TEST. THE PURPOSE OF THE TILT-TM E-CAN-TEST IS TO DETECT NON ROTATING GYRO.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. TORQUING OF THE PITCH DISPLACEMENT GYRO DURING THE PITCH PROGRAM RESULTED IN EXCESSIVE PITCH SIGNALS TO THE ENGINES.							
VEHICLE EFFECT-IMPROPER TRAJECTORY. MISSILE SELF-DESTRUCTION, CAUSED BY THE EXCESSIVE PITCH RATE, OCCURRED AT APPRO XIMATELY 55.6 SECONDS.							

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	CORRECTIVE ACTION-SPIN MOTOR ROTATION DETECTOR AND IMPROVEMENT (SUFFIX D) IN GYRO DESIGN HAD PREVIOUSLY BEEN RECOMMENDED BY GOC BUT OLD TYPE GYROs (SUFFIX B) WERE FLOWN. SUBSEQUENT VEHICLES TO CARRY IMPROVED GYROs.						894463
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-49-04-4128-F RATE GYRO	FAR 7-41014	177D 630220	FACTORY	YES NO		894408
	FAILURE MODE-OUT OF TOLERANCE. GYRO CANISTER REPORTEDLY FAILED IN THE FACTORY FINAL TEST AREA WHEN IT EXHIBITED A HIGH PITCH-RATE GYRO TORQUING GAINS. FAILURE INDICATIONS BELIEVED CAUSED BY A BUILDUP OF PACKAGE AND TEST SET TOLERANCE GIVING A HIGH READING.						
	CORRECTIVE ACTION-FAILURE NOT CONFIRMED. HOWEVER, A LETTER WAS SENT TO THE AIR FORCE REQUESTING PERMISSION TO EXPAND THE SYSTEM TEST PARAMETERS TO A POINT COMPARABLE WITH THE FIELD PARAMETERS. THIS CHANGE WOULD TAKE INTO ACCOUNT THE BUILDUP OF TOLERANCES.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-49-04-4128-F DISPLACEMENT GYRO	FAR 7-41015-987	177D 630220	FACTORY	YES NO		894409
	FAILURE MODE-OUT OF TOLERANCE. GYRO CANISTER REPORTEDLY FAILED IN THE FACTORY FINAL TEST AREA WHEN IT EXHIBITED A HIGH PITCH DISPLACEMENT GAIN. FAILURE INDICATIONS BELIEVED CAUSED BY A BUILDUP OF PACKAGE AND TEST SET TOLERANCE GIVING A HIGH READING.						
	CORRECTIVE ACTION-FAILURE NOT CONFIRMED. HOWEVER, A LETTER WAS SENT TO THE AIR FORCE REQUESTING PERMISSION TO EXPAND THE SYSTEM TEST PARAMETERS TO A POINT COMPARABLE WITH THE FIELD PARAMETERS. THIS CHANGE WOULD TAKE INTO ACCOUNT THE BUILDUP OF TOLERANCES.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4212 AMPLIFIER/CAPACITOR	FAR 7-41907-5	630219	FACTORY	YES NO		892743
	FAILURE MODE-OUT OF TOLERANCE. PHASE SHIFT OF ROLL SIGNAL AMPLIFIER WAS OUT OF SPEC DUE TO CHANGE IN VALUE OF CAPACITOR C7. CASE OF CAPACITOR WAS FOUND DENTED. AMPLIFIER WAS IN SPEC IMMEDIATELY PRIOR TO POTTING AND OUT OF SPEC IMMEDIATELY AFTER POTTING. CAUSE OF FAILURE OF CAPACITOR WAS NOT LEARNED.						
	CORRECTIVE ACTION-CAUSE OF FAILURE WAS NOT DETERMINED. NO CORRECTIVE ACTION TAKEN.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-90-04-4093-F GYRO DISPLACEMENT-CONNECTOR ELECT.	FAR 7-41015-987	630206	WTR	YES NO	KEARFOTT	
	FAILURE MODE-ELECTRICAL SHORT. ROLL GYRO COULD NOT BE NULLED. FAILURE WAS CONFIRMED DUE TO BENT PIN 2 OF J-104 SHORTED TO PIN 1 OF MATING PLUG.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-607C INITIATED SPECIAL INSTRUCTIONS TO SITE TO INSPECT ALL PLUGS FOR BENT PINS PRIOR TO CONNECTION G NATING PLUGS IN ORDER TO ELIMINATE THIS TYPE OF HUMAN ERROR FAILURE.						004002
AUTOPILOT-ROUND-A/B GYRO PACKAGE	N2-9D-04-4071F GYRO-DISPLACEMENT	PAR 27-44534-3	630122	WTR	YES NO		005102
FAILURE MODE-OPEN (ELECT.). THE GYRO PACKAGE WAS REJECTED FOR NO SHRD OUTPUT. FAILURE ANALYSIS REVEALED THE YAW DIS PLACEMENT GYRO WAS NOT OPERATING AT SYNCHRONOUS SPEED. CAUSE OF FAILURE WAS THE FLEX LEAD ON PHASE A OF THE SPIN MOT OR WAS BURNED OPEN.							
CORRECTIVE ACTION-A SPECIAL STUDY WAS MADE AND THE FOLLOWING ACTION INITIATED. A PROVEN IMPROVED FLEXLEAD DESIGN WT LL BE OBTAINED AND INCORPORATED IN NEW GYROS AND REMOVED. GYRO WARM UP PERIOD EXTENDED. A GYRO TRAINING COURSE INITI ATED TO BE CONTINUED SPECIAL HANDLING INSTRUCTIONS TO BE INCORPORATED IN APPROPRIATE EOPS. SEE MEMO 598-2-5083 NEW P ART VO 7-04250-807.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	H6-99-04-4072F GYRO-PATE	PAR 27-41703-808	630116	FACTORY	YES NO		005101
FAILURE MODE-STRUCTURAL. ROLL-RATE GYRO WAS DISCOVERED TO HAVE A HIGH NULL VOLTAGE OUTPUT-A CROSS CHECK WITH RECEIV ING INSPECTIONS RECORDS SHOWED A SHIFT OF IN-PHASE NULL VOLTAGE FROM 2.64 TO 31.5 MV. FAILURE WAS CAUSED BY THE CRAC KED GLUE ALLOWING THE STATOR WINDING TO HAVE A MINUTE MOVEMENT SHIFTING THE IN-PHASE NULL.							
CORRECTIVE ACTION-VENDOR IS AWARE OF CRACKED GLUE PROBLEM AND IS CONDUCTING AN INVESTIGATION ON OTHER GLUES AND CEM ENTING AGENTS. UPON COMPLETION OF VENDOR'S INVESTIGATION CORRECTIVE ACTION WILL BE TAKEN.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	N2-A9-04-4074F SHRD	PAR 27-44534-3	630104	FACTORY	YES NO		005100
FAILURE MODE-STRUCTURAL. PACKAGE WAS REJECTED IN MISSILE FINAL CHECKOUT FOR NO SHRD OUTPUT. FAILURE WAS CAUSED BY Y AULTY WELD JOINT IN MODULE 27-43183-3.							
CORRECTIVE ACTION-QUALITY CONTROL. INSURE USE OF FACTORY WELD SCHEDULES AND WELDERS CERTIFICATION PROGRAM.							

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SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA-SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4089-F AMPLIFIER WIRING	PAR 7-41908-805	201D 021219	FACTORY	YES NO	
FAILURE MODE-OPEN (ELECT)-SIGNAL AMPLIFIER EXHIBITED NO RATE EMITTER FOLLOWER OUTPUT. FAILURE CONFIRMED DUE TO A BR WREN LEAD BETWEEN TERMINAL 4-B AND RESISTOR R-5. LEAD BROKE AS A RESULT OF BEING PINCHED BEFORE OR DURING POTTING.						
CORRECTIVE ACTION-60/C CONDUCTED A COMPLETE REVIEW OF TOOLING AND METHODS USED DURING ASSEMBLY WHICH WAS FOUND SATIS FACTORY. ASSEMBLY PERSONNEL WERE INFORMED OF THE HUMAN FAILURE AND WERE REQUESTED TO USE EXTREME CAUTION TO PREVENT DAMAGE TO WIRES DURING ASSEMBLY.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	PAR A-99-04-4104F GYRO-RATE HEATER	PAR 7-04250-3	021213	FACTORY	YES NO	YES KEARFOOT NO C7D2506000
FAILURE MODE-OUT OF TOLERANCE. RATE GYRO FAILED BECAUSE OF OVERHEATING DUE TO LOW RESISTANCE HEATER RING.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN. NO DISCREPANCIES FOUND IN GYRO. ACTUAL FAILURE OCCURRED IN HEATER RING , WHICH WAS NOT SENT IN FOR ANALYSIS.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4078F AMPLIFIER-DC/TRANSISTOR	PAR 27-41356-903	021211	FACTORY	YES NO	
FAILURE MODE-OUT OF TOLERANCE-TWO DC AMPLIFIERS ASSEMBLIES WERE REJECTED FOR BEING OUT OF TOLERANCE AND WERE SUSPECT ED OF BEING HEAT SENSITIVE. ONE PMS29A ON EACH ASSEMBLY WENT INTO THERMAL RUNAWAY WHEN THE TRANSISTORS WERE TESTED A T 125 DEG. THUS THE FAILURES WERE VERIFIED.						
CORRECTIVE ACTION-SURVEY INSTRUCTION 7-63 WAS INITIATED. REQUIRING RETEST OF ALL 2ND02A TRANSISTORS IN STOCK FOR TE MPERATURE SENSITIVITY. ALSO TEST PROCEDURES WERE CHANGED TO REQUIRE TESTING OF DC AMPLIFIERS FOR TEMPERATURE SENSITI VITY.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4002-F RATE GYRO CANISTER	PAR 27-45043-905	021121	SAFS	YES NO	
FAILURE MODE-LEAK EXTERNAL-REMOTE RATE GYRO GROUP CANISTER LEAKED AROUND PRESSURE FITTING WHEN REMOVED FROM STORAGE						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						

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AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-90-04-4074F DISPLACEMENT GYRO HARNESS	FAR 27-41002-899	821024	WTR	YES NO		894827
FAILURE MODE-DRIFT-THE PACKAGE WAS REJECTED WHEN DRIFTS FROM ALL 3 DISPLACEMENT GYROS CHANGED RADICALLY. FAILURE WAS CAUSED BY FAULTY SOLDERING OF WIRE TO CONNECTOR ASPI PIN 98. THIS IS CHASIS GROUND FOR GYRO DISPLACEMENT GROUP. FU OTHER CHECKING FOUND TWO MORE LOOSE SOLDER JOINTS.							
CORRECTIVE ACTION-ALL HARNESS TRAYS REINSPECTED. NEW SOLDERING METHOD BEING INVESTIGATED. MANUFACTURE OF HARNESS TRAYS WAS PULLED BACK FROM 60/E.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-90-04-3350F RATE GYRO	FAR 27-41703-809	821000	ETR	YES NO	YES MINNY-MONEY	894731
FAILURE MODE-CONTAMINATION. THE REMOTE-RATE GYRO PKG WAS REJECTED WHEN, DURING LOOP TESTS, THE YAW RATE GYRO HALL W AS TOO HIGH (44MV). FAILURE WAS CONFIRMED AND TEAR DOWN TESTS FOUND SMALL SOLDER SPECK INSIDE THE TORQUER COIL CUP. THE RELATIONSHIP OF THE SOLDER TO THE FAILURE COULD NOT BE DETERMINED.							
CORRECTIVE ACTION-VENDOR TO CHANGE QUALITY CONTROL AND MANUFACTURING TECHNIQUES. REF. MINNEAPOLIS-HONEYWELL REPORT JRS-1052-1, DATED OCTOBER 1962.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-4077F GYRO-RATE/RESISTOR	FAR 27-04574-3	820926	FACTORY	YES NO	YES HONEYWELL NO JRS101A2	894528
FAILURE MODE-OUT OF TOLERANCE-THE GYRO WAS REJECTED FOR HIGH SENSITIVITY-THIS WAS CONFIRMED BY FUNCTIONAL TESTING-THE SENSITIVITY ADJUSTING RESISTOR WAS FOUND SLIGHTLY DAMAGED. THE PURCHASED RESISTANCE VALUE COULD NOT BE DETERMINED THEREFORE IT WAS NOT POSSIBLE TO DETERMINE IF THE RESISTANCE HAD CHANGED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION WILL BE TAKEN AS NO DEFINITE CAUSE OF FAILURE COULD BE DETERMINED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-3309-F DISPLACEMENT GYRO WIRING	FAR 7-04250-3	820920	FACTORY	YES NO	YES KEARFOY	897211
FAILURE MODE-FAILURE DURING OPERATION. DURING FACTORY VIB. TEST, GYRO LOST SPEED AND SHED LITE EXTINGUISHED. FAILURE E CONFIRMED. PHASE A FLEXLEAD OPEN AT TERMINAL POST AS RESULT OF FLEXLEAD DISTORTION. DISTORTION DUE TO MISHANDLING. IMPROPER TORQUING OF GYRO FLOAT, OR FLOW OF FLOTATION MATL DURING COOL DOWN.							
CORRECTIVE ACTION-HANDLING RIGHTS. REVISED PER MEMO 556-2-5083. ALSO, Baffles INCORPORATED TO PRECLUDE FLOW OF FLOTATION MATL.							

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AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3494-F DISPLACEMENT GYRO	PAR 7-04250	820917	FACTORY	YES	KEARFOIT	992772
FAILURE MODE-CONTAMINATION. THE GYRO WAS 1P/D WHEN IT SHOWED SIGNS OF STICKION. THE FAILURE WAS CONFIRMED IN TWO DIFFERENT TEST POSITIONS. FAILURE WAS CAUSED BY CONTAMINANT PARTICLES IN THE FLUID.							
CORRECTIVE ACTION-THE VENDOR WAS REQUESTED TO IMPROVE CLEANING, INSPECTION AND DAMPING FLUID FILTERING METHODS.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-92-0043/FC-CO-02-0008-021 AMPLIFIER	COMPOSITE-FACTORY	149D	FACTORY	NO		992443
FAILURE MODE-OUT OF TOLERANCE. THE PITCH BUCKOUT AMPLIFIER ACTION WAS NOT PRESENT AT STAGING TO APPROXIMATELY 19 SECONDS AFTER STAGING AT WHICH TIME THE PITCH AXIS GYRO SIGNAL WAS UNGROUND. THE BUCKOUT AMPLIFIER IN THE AGE HAD DRIFTED.							
SYSTEM EFFECT-ERRATIC OPERATION, DUE TO AN IMPROPERLY ADJUSTED PITCH BUCKOUT AMPLIFIER IN THE AGE.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING REQUIRED TO DEMONSTRATE PROPER OPERATION.							
CORRECTIVE ACTION-THE AMPLIFIER WAS RE-ADJUSTED AND THREE POST COMPOSITE INTEGRATED TESTS WERE PERFORMED TO ASSURE SATISFACTORY OPERATION.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3519-F DISPLACEMENT GYRO SWRD	PAR 7-04250-3	820904	FACTORY	YES	KEARFOIT	997223
FAILURE MODE-ERRATIC OPERATION. INTERMITTENT SWRD OUTPUT DURING MP6 TEST TTE 182.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-92-0043/FC-CO-01-0008-021 AMPLIFIER	COMPOSITE-FACTORY	149D	FACTORY	NO		992448
FAILURE MODE-OUT OF TOLERANCE. PITCH BUCKOUT AMPLIFIER ACTION WAS NOT PRESENT AT STAGING AND APPROXIMATELY 19 SECONDS AFTER STAGING AT WHICH TIME THE PITCH AXIS GYRO SIGNAL AMPLIFIER WAS UNGROUND. POST COMPOSITE RETESTING FAILED TO DUPLICATE THIS DISCREPANCY, HOWEVER IT REPEATED ON THE SECOND COMPOSITE TEST.							
SYSTEM EFFECT-ERRATIC OPERATION- DUE TO AN IMPROPERLY ADJUSTED PITCH BUCKOUT AMPLIFIER IN THE AGE. EXTRANEOUS ENGINE MOVEMENTS WERE OBSERVED FROM STAGING AND TO 19 SECONDS LATER.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING REQUIRED TO DEMONSTRATE PROPER OPERATION.							
CORRECTIVE ACTION-PITCH BUCKOUT AMPLIFIER READJUSTED.							

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AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-98-04-3348F ROLL DISPLACEMENT GYRO	FAR 27-41002-899	149D 620828	FACTORY	YES NO		894732
FAILURE MODE-ELECTRICAL SHORT. THE GYROSCOPE PACKAGE FAILED DUE TO SLOW RESPONSE TO ROLL TORQUING TESTING REVEALED THE ROLL DISPLACEMENT GYRO HAD A PARTIAL SHORT CIRCUIT BETWEEN THE REFERENCE AND CONTROL WINDINGS OF THE TORQUER.							
CORRECTIVE ACTION-VENDOR MADE AWARE OF FAILURE AND REQUESTED TO IMPROVE S-C ON ALL FUTURE WINDING OPERATIONS.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-98-04-3334F	FAR 27-41002-899	179D 620817	ETR	YES NO		894348
FAILURE MODE-OUT OF TOLERANCE. GYRO PACKAGE WAS 18/0. IT WAS REPORTED THAT ROLL PROGRAM SLAVING WAS OUT OF TOLERANCE. TWO TESTS OF THIS UNIT SHOWED NO IRREGULARITY OF OUTPUT. ALL READINGS WERE VERY CLOSE TO ORIGINAL SELL-OFF DATA. BELIEVE THE TEST SET AT ETR IS FAULTY.							
CORRECTIVE ACTION-PROGRAM INITIATED TO ISOLATE AND ELIMINATE TEST SET DISCREPANCIES BETWEEN FACTORY AND ETR TEST EQUIPMENT.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-98-04-3379F AMPLIFIER COUPLING RESISTOR	FAR 27-41002-899	179D 620810	ETR	NO NO		893170
FAILURE MODE-OUT OF TOLERANCE. THE GYRO CANISTER WAS REJECTED WHEN RESISTANCE CHECK ON THE YAW SIGNAL AMPLIFIER COUPLING RESISTOR MEASURED 350 OHMS INSTEAD OF 300 OHMS. EXAMINATION OF THE RESISTOR SHOWED THE VALUE HAD CHANGED FROM 300 OHMS TO 350. THIS CHANGE IS THE RESULT OF A SHORT DURATION, HIGH AMPLITUDE TRANSIENT BEING APPLIED. THIS TRANSIENT WAS CAUSED BY A FAULTY DOWNSTREAM SERVOAMPLIFIER WHICH HAD FAILED. REF FAR SP-98-04-3384P.							
CORRECTIVE ACTION-TRANSFORMER T-2 REPLACED SEE FAR SP-98-04-3384P.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-98-04-3380-F AMPLIFIER COUPLING RESISTOR	FAR 27-41703-899	179D 620810	ETR	NO NO		893189
FAILURE MODE-OUT OF TOLERANCE. THE THREE-RATE GYRO GROUP WAS REJECTED FOR CONTAINING AN OUT-OF-TOLERANCE YAW SIGNAL AMPLIFIER COUPLING RESISTOR. THERE WAS NO FAILURE IN THIS UNIT. FAILURE WAS FOUND IN MAIN UNIT.							
CORRECTIVE ACTION-NO FAILURE. NO CORRECTIVE ACTION TAKEN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B GYRO PACKAGE	SP-98-04-3321F	FAR 27-41002-899	179D 820806	ETR	NO YES	NO 60/C	894076
FAILURE MODE-ERRATIC OPERATION-THE A/P GYRO PACKAGE WAS REJECTED WHEN ERRATIC VERNIER ENGINE MOVEMENT WAS OBSERVED. THE A/P 27-41000-831 (IR 848171) WAS REJECTED AT THE SAME TIME. A COMPLETE ELECTRICAL PROOF CYCLE WAS RUN ON THE 6V NO CANISTER THE REPORTED FAILURE WAS NOT CONFIRMED.							
CORRECTIVE ACTION-NONE.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3318-F DISPLACEMENT GYRO	FAR 7-04250-3	820731	FACTORY	YES NO	YES KEARPOT	897230
FAILURE MODE-EXCESSIVE DRIFT. CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	SP-99-01-3326F SPIN MOTOR TRANSFORMER	FAR 27-41002-913	131D 820724	FACTORY	YES NO		894082
FAILURE MODE-ELECTRICAL SHORT. GYRO PACKAGE IR/D BECAUSE 115V 400-CPS 3-PHASE POWER-SUPPLY CIRCUIT BREAKER OPENED WHEN POWER WAS APPLIED TO THE GYRO SPIN MOTORS. THE SPIN MOTOR TRANSFORMER (P/N T-3-70063) WAS SHORT-CIRCUITED BETWEEN PHASE-C AND NEUTRAL IN THE PRIMARY WINDING.							
CORRECTIVE ACTION-NO IMMEDIATE CORRECTIVE ACTION AS THERE HAS BEEN ONLY ONE OTHER FAILURE.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3326F DISPLACEMENT GYRO-SHED	FAR 7-04250-3	820719	FACTORY	YES NO	YES 60/C	894701
FAILURE MODE-ELECTRICAL OPEN. THE GYRO REPORTEDLY FAILED IN THE FACTORY WHEN AN OPEN SHED WINDING WAS DISCOVERED. THE GYRO WAS DISASSEMBLED AND THE SHED FLEX LEAD WAS FOUND DETACHED FROM THE SIGNAL TERMINAL POST.							
CORRECTIVE ACTION-THIS IS THE FIRST FAILURE OF THE NEW HEAVIER SHED FLEX LEAD AND WILL BE STUDIED TO SEE IF THE 6IN BAL POST OR CLIP NEED REDESIGN. ALSO REF. FAR-A-89-04-3100F.							

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AUTOPILOT-ROUND-A/B GYRO PACKAGE	AP-80-04-3317F GYRO-SPIN MOTOR TRANSFORMER	FAR 27-4100R-909	1840 820717	WTR	NO NO		893894
FAILURE MODE-OPEN-GYRO CANISTER REPORTED TO HAVE PHASES B AND C WERE BURNED OPEN. MEASUREMENTS SHOWED PHASE A SHORT ED TO NEUTRAL AND B AND C OPEN. THE SPIN MOTOR TRANSFORMER 27-04395-3 WAS OPEN AND SHORTED. IT WAS CONCLUDED THAT A UNUSUAL FAILURE CAUSED 28VDC TO BE PUT ON THE 115 VAC TRANSFORMER WHICH CAUSED IT TO BURN OUT. REF. IN 811288, PPA R V-04-823.							
CORRECTIVE ACTION-NONE-AS THIS WAS A SECONDARY FAILURE.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-89-04-3386F RATE GYRO-SHARD MAGNET	FAR 27-04374-3	820700	FACTORY	YES 50/C NO		893185
FAILURE MODE-FAIL TO OPERATE. THE RATE GYRO PKG WAS IR/D FOR NO SHARD OUTPUT. THE SHARD CIRCUIT WAS FOUND TO BE FAULTY V. THE SHARD MAGNET WAS DEMAGNETIZED. THIS WAS CAUSED BY EXTERNAL VOLTAGES BEING ERRONEOUSLY APPLIED TO THIS CIRCUIT.							
CORRECTIVE ACTION-PERSONNEL CAUTIONED TO USE CARE IN TROUBLE SHOOTING GYROS. REF TWR 107-116 DATED 820728.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AG-98-04-3234F	FAR 27-41000-951	1490 820828	ETR	YES NO		894330
FAILURE MODE-OPEN (ELECT). RECORDER DID NOT RECEIVE THE VERNIER ENGINE NUMBER ONE PITCH ACTUATION SIGNAL-FAILURE SU SPECIFIED IN 68E.							
CORRECTIVE ACTION-CHECK OUT EQUIPMENT TO BE SURVEYED AT ETR-FAILURE UNCONFIRMED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-3210-F DISPLACEMENT GYRO	FAR 7-04230-3	820828	FACTORY	YES HEARFOTT NO CTO-8508-000		898096
FAILURE MODE-OUT OF TOLERANCE. GYRO EXHIBITED STICKTION DURING BENCH TESTING IN FACTORY.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							

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AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-98-043230F GYRO	FAR 27-41002-898	820825	ETR	YES NO		894586
FAILURE MODE-OUT OF TOLERANCE-THE GYRO CANISTER WAS REJECTED FOR OUT OF TOLERANCE IN ROLL PROGRAM SLAVING SENSITIVE 77 (100 HIGH).							
CORRECTIVE ACTION-UNKNOWN. FAILURE UNCONFIRMED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-98-04-3238F	FAR 27-41703-808	820825	ETR	YES NO		894531
FAILURE MODE-FAILED DURING OPERATION-A REPORTED GRINDING NOISE COULD BE HEARD IN THE RATE GYRO CANISTER AND A BEARING FAILURE WAS SUSPECTED.							
CORRECTIVE ACTION-FAILURE UNCONFIRMED-ETR REQUESTED TO FURNISH MORE COMPLETE INFORMATION.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-98-04-3236C GYRO-SMID	FAR 27-41002-908	820826	FACTORY	YES NO		894586
FAILURE MODE-OUT OF TOLERANCE-SMID OUTPUT WAS LOW-FAILURE CONFIRMED ON FTR 17388.							
CORRECTIVE ACTION-GYRO WAS REPLACED WHEN CANISTER WAS REPAIRED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-98-04-3319F INTEGRATING RATE GYRO	FAR 7-04250-1	820804	FACTORY	YES NO		893697
FAILURE MODE-OUT OF TOLERANCE. MSG. AREA REPORTED A HIGH OUT OF TOLERANCE DRIFT RATE. GYRO WAS FOUND TO HAVE DISTORTED FLEX LEADS. CAUSE OF DISTORTED FLEX LEADS COULD NOT BE ESTABLISHED.							
CORRECTIVE ACTION-UNITS NO LONGER MADE SO NO CORRECTIVE ACTION TAKEN.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-98-04-3359F RATE GYRO HEATER	FAR 27-04374-3	820323	FACTORY	YES NO		
FAILURE MODE-FAIL DURING OPERATION. THE RATE GYRO WAS REJECTED FOR A SUSPECTED BROKEN TORSION BAR A BROKEN TORSION BAR IS NORMALLY EVIDENCED BY INABILITY OF THE GYRO TO RESPOND TO A RATE INPUT. THE RATE GYRO WAS FUNCTIONALLY TESTED AND THE FAILURE COULD NOT BE CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-NONE AS FAILURE WAS NOT CONFIRMED.						094710
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3381F GYRO/DISPLACEMENT HEATER	FAR 7-04250-3	620325	FACTORY	YES	REARFOIT NO	094710
FAILURE MODE-ERRATIC OPERATION-THE UNIT WAS REJECTED DURING MANUFACTURE FOR AN INTERMITTENT FINE HEATER. THE FAILURE WAS CONFIRMED. THE INTERMITTANT WAS DUE TO IMPROPER CRIMPING OF THE SPLICING CONNECTOR DURING ASSEMBLY.							
CORRECTIVE ACTION-VENDOR NOTIFIED AND HE STATED INCREASED CONTROL WOULD BE INITIATED IN THE MANUF. OF THE HEATER BE NSOR.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3223F GYRO-TRANSFORMER	FAR	620325	FACTORY	YES	NO	094800
FAILURE MODE-OPEN (ELECT). FEEDBACK TRANSFORMER ON TORQUE AMPLIFIER BOARD OPEN CIRCUITED WHEN HEATED DURING FINAL CHECK OUT.							
CORRECTIVE ACTION-VENDOR INSTRUCTED QC DEPT. TO MAINTAIN VERY CLOSE SURVEILLANCE OF SOLDER JOINTS.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3396F RATE GYRO	FAR 7-04250-3	620318	FACTORY	YES	REARFOIT NO	094720
FAILURE MODE-ERRATIC OPERATION. GYRO IR/D FOR AN INDICATED INTERMITTANT FINE HEATER INTERNAL SENSING ELEMENT. THE FAILURE COULD NOT BE CONFIRMED. THE SAME TYPE OF FAILURE WAS REPORTED ON A-99-04-3380F. AGAIN THE FAILURE COULD NOT BE RESOLVED.							
CORRECTIVE ACTION-NONE-FAILURE NOT CONFIRMED.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	N2-90-04-4007F DISPLACEMENT GYRO HEATER	FAR 87-44934-3	620318	WTR	YES	NO	094495
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. ROLL GYRO FINE HEATER FAILED TO OPERATE. FAILURE ATTRIBUTED TO CIRCUITRY EXTERNAL TO THE GYRO PACKAGE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-3238F CIRCUIT BOARD	FAR R7-41002-899	317 820312	0Y592	YES NO		0945334
FAILURE MAKE-OPEN (ELECT). NO GO ON 3MRD DURING CHECKOUT. FAILURE ANALYSIS REVEALED P/N 27-43193-3 HAD NO OUTPUT. C AUSE OF FAILURE OF THE MODULE COULD NOT BE DETERMINED MODULE WAS DESTROYED DURING DEPOTTING.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A662-0333/83-401-00-127 ROLL DISPLACEMENT GYRO	FLIGHT	1270 420311	R-3 0	YES NO		092736
FAILURE MODE-OUT OF SPECIFICATION. AN ERROR OF 9.2 DEGREES OCCURRED IN THE ROLL PROGRAM. THE ERROR IS BELIEVED TO H AVE BEEN A SLOW ROLL GYRO SPIN MOTOR ROTATION SPEED. THIS MISSILE DID NOT INCORPORATE THE SPIN MOTOR ROTATION DETECT OR (3MRD).							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-IMPROPER TRAJECTORY. A LARGE GUIDANCE YAW STEERING COMMAND WAS ISSUED TO CORRECT VEHICLE AZIMUTH.							
CORRECTIVE ACTION-ECP 1001 AUTHORIZES INSTALLATION OF 3MRD OF MISSILES 143D AND ON.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-3224-F GYRO-DISPLACEMENT HEATER	FAR 7-04250-1	820307	FACTORY	YES REARFOIT NO T-2508-2A		094399
FAILURE MODE-ERRATIC OPERATION-INTERMITTENT GYRO HEATER SENSING ELEMENT.							
CORRECTIVE ACTION-UNKNOWN, PROBLEM WILL BE KEPT UNDER SURVEILLANCE. FAILURE CONFIRMED. FAILURE POSSIBLY OCCURRED IN THE ASSOCIATED CIRCUITRY.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A99-04-3327F GYRO-RATE	FAR 7-04250-3	820423	FACTORY	YES REARFOIT NO		093284
FAILURE MODE-OUT OF SPECIFICATION. TWO RATE GYROS FAILED DURING CHECKOUT. CAUSE OF FAILURE WAS STICKTION CAUSED BY A MECHANICAL BINDING DUE TO FRICTION, MECHANICAL BINDING, OR CONTAMINATION WITHIN THE GYRO.							
CORRECTIVE ACTION-UNKNOWN. TWO ADDITIONAL TESTS FOR STICKTION HAVE BEEN INSTITUTED AT RECEIVING AND INSPECTION.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3222-F DISPLACEMENT GYRO HEATER	FAR 7-04230-3	620417	FACTORY	YES NO	REARFOOT NO C70-2508-000	897213
FAILURE MODE-ELECTRICAL OPEN, DUE TO OPEN LEAD ON HEATER SENSING ELEMENT CAUSED BY FAULTY CRIMPING.							
CORRECTIVE ACTION-VENDOR NOTIFIED TO IMPROVE QUALITY CONTROL OF CRIMPING OPERATION.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	SP-98-04-3130F GYRO-DISPLACEMENT-BEARING	FAR 58-41002-809	1040 620320	ETR	YES NO		892048
FAILURE MODE-CONTAMINATION. THE CARTRIDGE EXHIBITED AN INTERMITTENTLY NOISY SPIN MOTOR. YAW DISPLACEMENT GYRO WAS REMOVED AND OPENED. A MOTOR BEARING WAS FOUND TO BE FULL OF DUST CREATED BY LACK OF LUBRICANT.							
CORRECTIVE ACTION-GYRO WAS REPLACED WITH NEW GYRO DESIGN CONTAINING IMPROVED SPIN MOTOR.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	A-99-04-3147F HEATER	FAR 27-45045-3	53F 620314	SYCAMORE	YES NO		894214
FAILURE MODE-FAILED DURING OPERATION. GYRO FAIL SAFE LIGHT DROPPED OUT DURING OPERATION. FIVE MINUTES WERE REQUIRED FOR GYRO HEATER TO COME ON AND SYSTEM TO RETURN TO OPERATION. THE FAILURE WAS CONFIRMED. CAUSED BY A TEMPERATURE DIFFERENTIAL TOO SMALL BETWEEN THE OPERATION AND FAIL SAFE THERMOSTATS.							
CORRECTIVE ACTION-ECF 1067 CHANGED FAIL SAFE THERMOSTATIC TEMPERATURE FROM 30 PLUS OR MINUS 3 DEGREES F TO 20 PLUS OR MINUS 3 DEGREES F.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AD62-0021/DA976/L2-404-00-115 MOTOR	COUNTDOWN 27-41703-809	1120 620305	PALCI-2	YES NO	50/C	896331
FAILURE MODE-FAIL DURING OPERATION. SHED SIGNAL AT 7-170 MINUTES DUE TO THE FAILURE OF A GYRO SPIN MOTOR.							
EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.							
CORRECTIVE ACTION-UNKNOWN. (FAR 90-04-8170)							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTM	VEHICLE NAME VEHICLE PART NO
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-3148F SIGNAL	FAR 27-41002-833	137 060223	WTR	YES NO	000000
FAILURE MODE-OUT OF TOLERANCE-THE SMOO OUTPUT VOLTAGE WAS LOW (-0.05VDC). FAILURE CONFIRMED. SMOO CHANNEL 5 WAS TEMPERATURE SENSITIVE.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	DAB73-02-SMO-14-03 YAW DISPL. GYRO	COMPOSITE-FRS/DPL 3P	060213	FACTORY	YES NO	000024
FAILURE MODE-OUT OF TOLERANCE. AUTOPILOT FAIL RED INDICATION.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. THE HIGH YAW GYRO OUTPUT DROVE THE ENGINES HARD OVER WHICH PLACED SUCH A DEM AND ON THE HYDRAULIC SYSTEM THAT PRESSURE FELL BELOW 1750 WHICH GROUND THE GYRO UNTIL PRESSURE INCREASED AGAIN TO 2000 PSI. BY THIS TIME THE ENGINES HAD RETURNED TO A HALL. THE CYCLE THEN REPEATED ITSELF.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RE-SCHEDULED.						
CORRECTIVE ACTION-DISPLACED GYRO REPLACED.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A-99-04-3148F SIGNAL AMPLIFIER	FAR 27-41076-5	060122	FACTORY	YES NO	000025
FAILURE MODE-ERRATIC OPERATION. AMPLIFIER (OUT PUT) WAS REPORTED OSCILLATING AFTER WARMUP. FAILURE WAS UNCONFIRMED BUT WAS BELIEVED TO BE CAUSED BY CAPACITIVE LOADING OF THE AMPLIFIER.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A161-0278/FC-4CO-02-119 FLIPPLOP SWITCH	COMPOSITE-FACTORY 1190	011025	NO	NO	000026
FAILURE MODE-FLIPPING SIGNAL WAS EVASIVE - THE GUIDANCE RECORDER AT THE SAME TIME. A FLIPPLOP SWITCH IN THE MESSAGE DE REARATION PORTION OF THE GUIDANCE CHECKOUT SET WAS DEFECTIVE.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-UNEXPECTED NEGATIVE TORQUING - CONTAINER YAW CHANNEL CAUSED BY DEFECTIVE AGE						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. RUNUP OF COMPOSITE MADE.						
CORRECTIVE ACTION-FLIPPLOP SWITCH REPLACED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VEHICLE NAME VEHICLE PART NO	
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AE81-09341/PCA-4CO-02-140 GYRO-DISPLACEMENT	COMPOSITE-FACTORY	1400 610929		YES NO		899437
FAILURE MODE-FAIL DURING OPERATION- THE YAW DISPLACEMENT GYRO DID NOT OPERATE.							
SYSTEM EFFECT-YAW GYRO DID NOT START.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED- COMPOSITE RE-RAN.							
CORRECTIVE ACTION-REPLACED ALL DISPLACEMENT GYROS.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AL81-0220/DAS29/L2-4MO-04-97 GYRO	COMPOSITE-FRD/DPL	970 610629	PALCI-2	YES NO		897316
FAILURE MODE-OUT OF TOLERANCE PITCH RATE GYRO HAD AN OUT OF TOLERANCE SIGNAL LEVEL OF PLUS 2.69 DEGREES DURING STAT IC CONDITIONS.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-FLIGHT CONTROL CANISTERS REPLACED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	GR-04-207 AMPLIFIER	FAR 7-41015-919	930 610503	WTR	NO NO		899972
FAILURE MODE-OUT OF TOLERANCE. GYRO ASSEMBLIES S/N 52 AND 911-0068 HAD NO-GO ON APACHE CHECK FOR LOW TORQUING GAINS. CAUSED BY APACHE INSTRUMENTATION LOAD AND VARIATION IN SIGNAL AMPLIFIER OUTPUT IMPEDANCE. GAINS WERE IN TOLERANCE W/ TM ONLY MISSILE LOADS							
CORRECTIVE ACTION-ENLARGED APACHE TOLERANCES FOR TORQUING TEST AND ESTABLISHED UPPER OUTPUT IMPEDANCE LEVEL FOR GYRO SIGNAL AMPLIFIERS.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	GR-04-190 DISPLACEMENT GYRO	FAR 7-41015-919	930 610321	WTR	YES NO		894749
FAILURE MODE-OUT OF TOLERANCE. DURING APACHE TESTS THE ROLL DISPLACEMENT OUTPUT WAS ABOVE SPECIFICATION LIMITS WHEN A ROLL TORQUEING INPUT WAS APPLIED. BELIEVED CAUSED BY TEST EQUIPMENT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B GYRO PACKAGE	6A-04-103 DISPLACEMENT GYRO WIRING	FAR 7-41013-919	950 610315	WTR	YES NO	YES REARFOIT	094778
FAILURE MODE-ELECTRICAL SHORT. DURING CHECKOUT THERE WAS NO OUTPUT FROM THE PITCH DISPLACEMENT GYRO. FAILURE WAS DUE TO THE C PHASE FLEX LEAD SHORT CIRCUITING TO THE COVER CAP ASSEMBLY.							
CORRECTIVE ACTION-INTERIOR OF COVER CAP ASSEMBLIES HAVE BEEN COATED WITH INSULATION MATERIAL SINCE ABOUT 4-15-1960. ACTION TAKEN TO RETROFIT ALL GYRO ASSEMBLIES WITH THE INSULATED COVERS AT THE SAME TIME THEY ARE RETRO-FITTED WITH SPIN MOTOR DETECTOR CIRCUITS.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	9C-04-179	FAR 7-41013-919	610 610223	CAF8	YES NO		094791
FAILURE MODE-FAIL DURING OPERATION. DURING AN APCME RUN SEVERAL NO-GO INDICATIONS WERE RECORDED. BELIEVED TO HAVE BEEN CAUSED BY OTHER SOURCES THAN THE AUTOPILOT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AE60-0954/P4-402-00-87 DISPLACEMENT GYRO	FLIGHT	670 610221	ETR 84	YES NO		095137
FAILURE MODE-OUT OF EXPECTED TEST VALUE-PROPELLANT SLOSH AMPLITUDES WERE CONSIDERABLY LARGER THAN ON PREVIOUS SERIES 5 D FLIGHTS. MAXIMUM PEAK-TO-PEAK RATES BEING 4.8 DEG/SEC IN YAW AT 80 SECONDS, 5.8 DEG/SEC IN PITCH AT 83 SECONDS, AND 13.7 DEG/SEC IN ROLL AT 84 SECONDS.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT- NONE. NO ADVERSE EFFECT WAS NOTED. HOWEVER, AN ABNORMAL RISE IN LOX TANK PRESSURE (2.56 PSIG) WAS INDICATED AT 85.5 SECONDS WITH A SUBSEQUENT DECAY TO STEADY-STATE BY 122.2 SECONDS. ALSO, 1 CPS OSCILLATIONS INDICATED VE OF ENGINE GIMBALLING IN RESPONSE TO 1 CPS MISSILE OSCILLATIONS CAUSED BY PROPELLANT SLOSHING WERE NOTED ON BOOSTER AND SUSTAINER VERNIER HYDRAULIC SYSTEM DATA.							
CORRECTIVE ACTION-AUTOPILOT GAIN CHANGES WERE EFFECTED FOR 1000. THESE WERE 13 PCT REDUCTION IN PITCH AND YAW POSITION GAINS BETWEEN LAUNCH AND 85 SECONDS, A 10 PCT INCREASE IN PITCH AND YAW RATE GAINS, AND A 100 PCT INCREASE IN VERNIER ROLL POSITION AND RATE GAINS.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	9C-04-199 DISPLACEMENT GYRO	FAR 7-41013-919	1020 610209	CAF8	YES NO		
FAILURE MODE-OUT OF TOLERANCE. DURING TESTING THE DISPLACEMENT GYRO TORQUING RATES WERE LOW. BELIEVED TO BE DUE TO INCOMPATIBILITY BETWEEN THE FACTORY AND FIELD TESTING.							

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18 JUN 1987

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
							884390
	CORRECTIVE ACTION-FAILURE NOT CONFIRMED. 60/C INITIATED ACTION TO INCREASE THE COMPATIBILITY BETWEEN FACTORY AND F1 ELD TESTING.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	88-04-113 GYRO-RATE	PAR 7-04290-1	810200	WTR	YES NO	YES REARFOY	884607
	FAILURE MODE-OUT OF TOLERANCE. GYRO WAS EMITTING AUDIBLE NOISE DUE TO BEARING LUBE DEPLETION.						
	CORRECTIVE ACTION-VENDOR HAS CHANGED CLEANING PROCESS AND INCREASED BEARING RETAINER POROSITY.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	88-04-113 GYRO-RATE	PAR 7-04290-1	810200	WTR	YES NO	YES REARFOY	884806
	FAILURE MODE-OUT OF SPECIFICATION. UNIT WAS REJECTED FOR HIGH EMITTER FOLLOWER OUTPUT. FAILURE WAS NOT CONFIRMED.						
	CORRECTIVE ACTION-NONE.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	88-04-201 GYRO-DISPLACEMENT	PAR 7-41015-910	810112	WTR	YES NO	YES	888876
	FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE-MINOR LACK OF SENSITIVITY DURING CAPTIVE CHECKS.						
	CORRECTIVE ACTION-INCREASED THE COMPATIBILITY AND ACCURACY OF GYRO PACKAGE TESTING.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	88-04-201 GYRO-RATE	PAR 7-41015-910	810111	WTR	YES NO	YES 60/C	888876
	CORRECTIVE ACTION-INCREASED THE COMPATIBILITY AND ACCURACY OF GYRO PACKAGE TESTING.						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SIO-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AE61-0013/FC-4CO-01-104 HARNES	COMPOSITE-FACTORY	1040 810108	YES NO			899429
FAILURE MODE-ELECTRICAL-OPEN. VERNIER ENGINE NO. 1 DID NOT RESPOND IN THE CLOSED LOOP ROLL AXIS DUE TO A GYRO PACKAGE DESIGN ERROR. HARNES WERE INCORRECTLY.							
SYSTEM EFFECT-OPERATION DOES NOT START.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED-TWO ADDITIONAL COMPOSITES WERE PERFORMED WITH THIS KNOWN HARNES ERROR.							
CORRECTIVE ACTION-REWORK TO BE ACCOMPLISHED AS A SITE TASK.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	SR-04-140 AMPLIFIER-RESISTOR	FAR 7-41015-919	99D 801213	WTR	YES NO		894133
FAILURE MODE-OUT OF TOLERANCE- BOOSTER ENGINE NO.1 DISPLACED APPROXIMATELY ONE THIRD EXPECTED AMOUNT DURING LOOP TEST. FAILURE DUE TO CRACKED TRIMMING RESISTOR R-2. O CAUSE UNDETERMINED.							
CORRECTIVE ACTION-UNKNOWN. GO/C TO MONITOR FAILURE RECORD OF THIS MODULE TO DETERMINE IF ANY OTHER FAILURES OF THIS TYPE OCCUR.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	DA293/83-4MO-01-89 SIGNAL AMPLIFIER	COMPOSITE-FRD/DPL 3F	601212	6	YES NO		896298
FAILURE MODE-FAIL DURING OPERATION. SIGNAL AMPLIFIER DEFECTIVE IN PASSING NEGATIVE SIGNAL TO FILTER.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. FAULT INDICATIONS RECEIVED ON VERNIER 1 AND VERNIER 2. YAW BIAS-BOOSTER AND VERNIER ENGINE GAINS DURING ROLL PROGRAM WERE INCOMPATIBLE.							
VEHICLE EFFECT-COUNTDOWN DELAYED.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	90-04-184 DISPLACEMENT GYRO HEATER	FAR 7-41015-919	601117	WTR	YES NO	YES NEARPOY	894776
FAILURE MODE-OUT OF TOLERANCE. DURING CAPING TESTS 13 NO-60 WERE RECEIVED. NO-60 WERE FOUND TO BE MINOR CALIBRATION OUT OF TOLERANCES. DURING CALIBRATION AT SAN DIEGO THE ROLL GYRO HEATER WAS NOTED TO BE ERRATIC DUE TO A PRAYED WIRE IN THE CANISTER.							
CORRECTIVE ACTION-NONE. ORIGIN OF PRAYED WIRE COULD NOT BE DETERMINED. CONSIDERED AN ISOLATED CASE.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B GYRO PACKAGE	90-04-185 DISPLACEMENT GYRO	FAR 7-41019-919	80116	WTR	YES NO	REARFOOT	894380
FAILURE MODE-CONTAMINATION. DURING CAPCHE TESTING EIGHT NO-508 WERE RECEIVED. DURING LABORATORY TESTING THE PITCH D ISPLACEMENT GYRO FAILED THE STICION TEST DUE TO A SMALL PIECE OF SOLDER IN THE FLOATATION FLUID.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. REARFOOT IMPROVED QUALITY CONTROL IN THE FLOATATION FLUID AREA.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AE80-0867/FC-4CO-01-096 DISPLACEMENT GYRO	COMPOSITE-FACTORY	960	FACTORY	NO NO		892261
FAILURE MODE-FAIL DURING OPERATION-AN UNEXPECTED GYRO BIAS WAS PRESENT DURING A YAW GYRO TORQUING EXERCIZE DUE TO F ALITY TEST PROGRAMMER TAPES IN THE AGE.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. PARTIAL COMPOSITE RETEST WAS PERFORMED.							
CORRECTIVE ACTION-THE AGE TEST PROGRAMMER WAS REPLACED.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AE80-0871/FC-5CO-02-011 RELAY	COMPOSITE-FACTORY	11E	FACTORY	NO NO		898031
FAILURE MODE-ERRATIC OPERATION. THE SARBORN RECORDING INDICATED AN ABSENCE OF THE YAW GYRO SIGNAL AMPLIFIER GROUNDING. THE YAW SIGNAL AMPLIFIER GROUNDING RELAY (K414) IN THE AGE WAS DEFECTIVE.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-REPLACED THE YAW SIGNAL AMPLIFIER GROUNDING RELAY IN THE AGE.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AE80-0871/FC-5CO-02-011 RELAY	COMPOSITE-FACTORY	11E	FACTORY	NO NO		898033
FAILURE MODE-FAIL DURING OPERATION. THE GYRO BIAS PHASE WAS OPPOSITE TO THAT EXPECTED AT THE TIME OF SUSTAINER CUTO PP DUE TO A DEFECTIVE AGE BIAS PHASE RELAY, R712.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-REPLACED AGE BIAS PHASE RELAY (R712).							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AE60-0886/FC-4CO-01-088 DISPLACEMENT GYRO	COMPOSITE-FACTORY	92D 601010	FACTORY	NO NO	089197
<p>FAILURE MODE-FAIL DURING OPERATION-ALL NEGATIVE YAW DISPLACEMENT GYRO BIASING WAS 15 PCT BELOW POSITIVE BIASING, DUE TO A FAULTY YAW AXIS MULLING AMPLIFIER, BUCKOUT AMPLIFIER AND ISOLATION AMPLIFIER IN THE AGE.</p> <p>SYSTEM EFFECT-OPERATION TOO LOW.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. PARTIAL COMPOSITE RETEST WAS REQUIRED.</p> <p>CORRECTIVE ACTION-THE YAW AXIS MULLING AMPLIFIER, BUCKOUT AMPLIFIER AND ISOLATION AMPLIFIER IN THE AGE WERE REPLACED.</p>						
AUTOPLOT-ROUND-A/B GYRO PACKAGE	98-04-119 GYRO-RATE	FAR 7-41019-939	87D 600922	WTR	YES NO	084171
<p>FAILURE MODE-SHORT (ELECT). DURING APCHE TESTING THE GYRO ASSEMBLY WAS REJECTED FOR A DEAD PITCH GYRO SPIN MOTOR. FAILURE DUE TO SPIN MOTOR FLEX LEAD SHORT CIRCUIT TO SPIN MOTOR COVER CAP ASSEMBLY.</p> <p>CORRECTIVE ACTION-(1) GYRO VENDOR ELECTRICALLY INSULATED THE INSIDE OF COVER CAP ASSEMBLY. (2) ALL DISPLACEMENT GYRO'S SURVEYED AND REPLACED WITH UNITS INCORPORATING INSULATED COVER CAPS.</p>						
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AE60-0843/FC-4CO-02-87 GYRO PACKAGE	COMPOSITE-FACTORY	87D 600816		NO NO	089322
<p>FAILURE MODE-FAIL DURING OPERATION-UNEXPECTED PITCH STEERING COMMANDS WERE INDICATED ON MI-WESTERN RECORDER NO. 2 WHEN YAW COMMANDS WERE EXPECTED, AND YAW COMMANDS WERE APPARENT WHEN PITCH COMMANDS WERE EXPECTED.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COUNTDOWN, COMPOSITE DELAYED OR RESCHEDULED. POST COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-FAULTY MULTIVIBRATOR IN THE ACCELEROMETER REGISTER OF GUIDANCE AGE CHECKOUT EQUIPMENT WAS REPAIRED.</p>						
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AE60-0843/FC-4CO-01-87 SERVO AMPLIFIER	COMPOSITE-FACTORY	87D 600811	FACTORY	YES NO	089322
<p>FAILURE MODE-FAIL DURING OPERATION-SUSTAINER PITCH AND YAW FEEDBACK TRACES INDICATED AN UNEXPECTED ENGINE MOVEMENT OF 1.2 VOLT AMPLITUDE FOR APPROXIMATELY 0.8 SECOND DURATION.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.</p>						

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15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE	PRI OTH	VENDOR NAME VENDOR PART NO	
							099324
CORRECTIVE ACTION-SERVO-AMPLIFIER INTEGRATOR PROGRAMMER WAS REMOVED, REMOVED, RETESTED AT COMPONENTS LEVEL, AND RE INSTALLED							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	99-04-181 DISPLACEMENT GYRO MOTOR	FAR 7-04250-1	600801	WTR	YES	KEARFOTT NO	092875
FAILURE MODE-CONTAMINATION. GYRO ASSEMBLY RETURNED BECAUSE OF AUDIBLE NOISE OPERATION. TWO GYROB EXHIBITED CONTAMIN ATION WITHIN THE HYSTERESIS RING INSIDE GYRO SPIN MOTOR.							
CORRECTIVE ACTION-YEAR TO KEARFOTT TO INTENSIFY THEIR EFFORTS TO INSURE (1) HELIUM USED IS PURE (2) ULTRASONIC CLEA NING USED WHEREVER FEASIBLE (3) FIXTURES ARE USED FOR BEARING LAPPING (4) STORAGE DESICCATORS ARE USED (5) ALL SOLID RING AND STRIPPING PERFORMED UNDER HOODS (6) SUBASSEMBLY OPERATIONS ARE SEGREGATED (7) BEARING END CAPS AND BELL HOUS INGS CEMENTED INSTEAD OF SOLDERED (8) PARTS SUBJECTED TO CORROSION ARE NICKELPLATED INSTEAD OF PAINTED (9) HYSTERES IS RING LIQUID HONES INSTEAD OF MAY FINISHED. (10) BEARINGS ARE FREE OF CONTAMINATION AND SATURATED WITH LUBRICANT.							
							092422
AUTOPLOT-ROUND-A/B GYRO PACKAGE	99-04-181 DISPLACEMENT GYRO BEARING	FAR 7-04250-1	600801	WTR	YES	KEARFOTT NO	092422
FAILURE MODE-STRUCTURAL. GYRO ASSEMBLY RETURNED BECAUSE OF AUDIBLE NOISE OPERATION. GYRO HAD A SPLIT BEARING RETAIN ER DUE TO OVERHEATING CAUSED BY LACK OF LUBRICANT.							
CORRECTIVE ACTION-YEAR TO KEARFOTT TO INTENSIFY THEIR EFFORTS TO ENSURE (1) HELIUM USED IS PURE (2) ULTRASONIC CLEANIN G IS USED WHEREVER FEASIBLE (3) FIXTURES ARE USED FOR BEARING LAPPING (4) STORAGE DESICCATORS ARE USED (5) ALL SOLDERING AND STRIPPING IS PERFORMED UNDER HOODS (6) SUB-ASSEMBLY OPERATIONS ARE SEGREGATED (7) BEARING END CAPS AND BELL HOUSING S CEMENTER INSTEAD OF SOLDERED (8) PARTS SUBJECTED TO CORROSION ARE NICKELPLATED INSTEAD OF PAINTED (9) HYSTERESIS RING LIQUID HONED INSTEAD OF MAY FINISHED (10) BEARINGS ARE FREE OF CONTAMINANT AND SATURATED WITH LUBRICANT.							
							094893
AUTOPLOT-ROUND-A/B GYRO PACKAGE	99-04-3373P DISPLACEMENT GYRO MOTOR	FAR 7-04250-3	1240 600730	FACTORY	YES	KEARFOTT NO	094893
FAILURE MODE-ELECTRICAL OPEN. GYRO WAS IN/O FOR HAVING NO OUTPUT. FAILURE WAS CONFIRMED AND TRACED TO A BROKEN A-PH ASE FLEX LEAD. IT HAS BEEN DETERMINED THAT DISTORTED FLEX LEADS IS LINKED TO EVENTUAL FLEXLEAD BREAKAGE.							
CORRECTIVE ACTION-CD/C INCORPORATED NEW HANDLING REQUIREMENTS INTO APPLICABLE PROCEDURES. GYROS NOW MADE WITH BAFFL ES NEAR FLEX LEADS TO MINIMIZE THE FLOW OF THE ALMOST SOLID FLOTATION MATERIAL DURING COOLDOWN. REF 60/A MEMO 558-2- 9093 DATED 20 MARCH 65.							

GENERAL DYNAMICS
CONVAIR DIVISION

19 JUN 1966

DIFFICULTIES REVIEW-AUTOPILLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILLOT-ROUND-A/B GYRO PACKAGE	AE60-0636/B1-401-00-74 PITCH DISPLACEMENT GYRO SPIN MOTOR	FLIGHT	740 600722	B-1 15	YES YES	YES REARFOOT	895616
FAILURE MODE-FAIL DURING OPERATION. ABNORMALLY HIGH PITCHOVER POSSIBLY DUE TO LOW PITCH DISPLACEMENT GYRO SPIN MOTOR SPEED.							
SYSTEM EFFECT-OPERATION TO HIGH-VEHICLE PITCH RATE WAS TOO HIGH.							
VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. PITCH OVER RATE OF MISSILE EXCESSIVE (60 PERCENT HIGH) WHICH RESULTED IN SELF DESTRUCT AT 60 SECONDS.							
CORRECTIVE ACTION-VENDOR (REARFOOT) TO INVESTIGATE THEIR PROCESSES REGARDING GYRO MFG. AND TEST. SPIN MOTOR DETECTED ON INSTALLED ON LATER VEHICLES TO ASSURE ADEQUATE SPIN MOTOR SPEED AT LIFTOFF. THE SPIN MOTOR CASE WAS INSULATED TO PREVENT SHORTING OF SPIN MOTOR LEADS.							
AUTOPILLOT-ROUND-A/B GYRO PACKAGE	AE60-0636/B1-401-00-74 TORQUE AMPLIFIER	FLIGHT	740 600722	B-1 15	YES YES	YES REARFOOT	895037
FAILURE MODE-FAILED DURING OPERATION. ABNORMALLY HIGH TORQUE AMPLIFIER GAIN DUE TO COMPONENT FAILURE ON CALIBRATION ERROR.							
SYSTEM EFFECT-OPERATION TOO HIGH. VEHICLE PITCH RATE WAS TOO HIGH.							
VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. PITCH OVER RATE OF MISSILE EXCESSIVE. AN AVERAGE 60 PERCENT HIGH PITCH OVER RATE FROM LIFTOFF TO SELF DESTRUCT AT 60 SECONDS.							
CORRECTIVE ACTION-RE-INSPECTION AND RETESTING OF ALL GYROS AND SERVO CANISTERS ASSOCIATED WITH OPERATION GOLDEN JOE AT VAFB. REVIEW PROCEDURES ON OPERATION OF GYROS. ISSUANCE OF I.G. TO PREVENT TAILORING GYRO PACKAGE AT ANY PLACE OTHER THAN SUPPLY DEPOT. VENDOR, REARFOOT TO INVESTIGATE THEIR PROCESSES REGARDING GYRO MANUFACTURE AND TEST.							
AUTOPILLOT-ROUND-A/B GYRO PACKAGE	90-04-093 AMPLIFIER-GAIN/TRANSFORMER	PAR 7-41015-919	330 600706	WTR	YES NO	YES 50/C	897747
FAILURE MODE-OUT OF TOLERANCE. DURING CAPCHE TESTS PITCH CHANNEL GAIN WAS OUT OF SPECIFICATION LIMITS. YAW AMPLIFIER GAIN WAS 30 PER CENT BELOW SPECIFICATION LIMITS. PITCH CHANNEL DISCREPANCY WAS DUE TO DRIFT. THE YAW CHANNEL DISCREPANCY WAS DUE TO A SHORT IN TRANSFORMER T1.							
CORRECTIVE ACTION-GYRO DESIGN CHANGED TO REQUIRE 1 PER CENT PRECISION RESISTORS IN THE GAIN TRIMMING CIRCUIT. GYRO VENDOR REQUESTED TO DO THE SAME IN THE GYRO HEATER SENSOR AND THE PHASE ANGLE TRIMMING CIRCUIT.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AS-04-112 GYRO-RATE	FAR 7-04230-1	600625	FACTORY	YES	NEARFOYT	094809
FAILURE MODE-OUT OF SPECIFICATION. DURING FACTORY CHECKOUT GYRO OPERATED AT 12000 RPM INSTEAD OF 24000 RPM.							
CORRECTIVE ACTION-VENDOR HAS CHANGED CLEANING PROCESS AND INCREASED BEARING RETAINER POROSITY.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	AZN-27-487/FC-4CO-03-32-ADDENDUM TORQUING AMPLIFIER	COMPOSITE-FACTORY 52D 600622	FACTORY	NO	NO		095628
FAILURE MODE-OUT OF TOLERANCE. THE RECORDING INDICATED YAW GYRO TORQUING RATES TO BE 64 TO 70 PCT ABOVE NORMAL. THE S CONDITION WAS CAUSED BY A DEFECTIVE YAW GYRO BUCKOUT AMPLIFIER LOCATED IN GSE.							
SYSTEM EFFECT-OPERATION TOO HIGH-TORQUING RATES WERE TOO HIGH DUE TO FAULTY BUCKOUT AMPLIFIER IN GSE.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TEST MADE TO SHOW PROPER TORQUING RATES.							
CORRECTIVE ACTION-FAULTY AMPLIFIER REPLACED.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	98-04-078 AMPLIFIER	FAR 7-41013-939	600521	ETR	NO	GO/C	097293
FAILURE MODE-OUT OF TOLERANCE-DURING TESTING ON THE CONTROL GYRO CHECKOUT SET THE PITCH DISPLACEMENT AND THE PITCH RATE GAIN WAS LOW. AMPLIFIER 7-41008-5 WAS DEFECTIVE DUE TO OVERHEATING.							
CORRECTIVE ACTION-NONE-FAILURE BELIEVED DUE TO INADVERTENT APPLICATION OF HIGH VOLTAGE TO OUTPUT OF AMPLIFIER.							
AUTOPLOT-ROUND-A/B GYRO PACKAGE	99-04-113 RATE GYRO SPIN MOTOR COVER	FAR 7-04230-1	600526	ETR	YES	NEARFOYT	094803
FAILURE MODE-SHORT DEVELOPED IN AS LEG OF STATOR. ATTRIBUTED TO INSUFFICIENT CLEARANCE BETWEEN SPIN MOTOR COVER AND STATOR WINDING. GYRO SP. BELOW SPECIFICATION AND DREW EXCESSIVE CURRENT.							
CORRECTIVE ACTION-VENDOR INCREASED CLEARANCE BY 0.10 INCH.							

18 JUN 1966

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTM	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B GYRO PACKAGE	90-04-077 GYRO-DISPLACEMENT	FAR 7-41015-919	600521	WTR	YES NO		897892
FAILURE MODE-OUT OF TOLERANCE-DURING CONTROL GYROS TEST THE PITCH CHANNEL DISPLACEMENT GAIN AND AVERAGE SENSITIVITY WERE ABOVE SPECIFICATION TOLERANCES. YAW DISPLACEMENT GYRO SPIN MOTOR COVER WAS SHORT CIRCUITED TO THE STATOR, AND THERE WAS A DEFECTIVE LEAD IN WIRE SOLDER JOINT.							
CORRECTIVE ACTION-STATOR END TURN DIMENSIONAL TOLERANCE HAS BEEN REDUCED BY 0.010 INCHES. OVERVOLTAGE TESTS INSTITUTED ON ALL STATORS TO CULL OUT DEFECTIVE STATOR ASSEMBLIES. INSTITUTED A TRAINING PROGRAM IN PROPER ASSEMBLY AND INSPECTION TECHNIQUES. MICROSCOPIC INSPECTION OF INCOMING WINDING WIRE INITIATED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AE60-0432/82-401-00-23 GYRO-DISPLACEMENT	FLIGHT 7-04250-1	23D 600506	B-2 D.	YES NO		895933
FAILURE MODE-SHORT-ELECTRICAL. ONE OF THREE FLEX LEADS TO THE PITCH DISPLACEMENT GYRO SPIN MOTOR SHORTED TO THE GYRO CASE AND BURNED THROUGH.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. SHORTED LEAD RENDERED SPIN MOTOR INOPERATIVE PRECLUDING PITCH DISPLACEMENT GYRO OUTPUT IN RESPONSE TO MISSILE MOTION.							
VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. RESULTING IN DESTRUCTION OF VEHICLE BY RANGE SAFETY OFFICER AT 25.6 SECONDS.							
CORRECTIVE ACTION-SPIN MOTOR LEADS INSULATED FROM GYRO PACKAGE COVER IN THE SUFFIX D GYRO CHANGE.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	99-04-098 RATE GYRO	FAR 7-04250-1	600428	ETR	YES NO	YES NO	897896
FAILURE MODE-CONTAMINATION. GYRO WAS REMOVED FROM ASSEMBLY BECAUSE IT WAS EMITTING A LOUD AUDIBLE NOISE. BEARING AND HISTERESIS RING WAS RUSTY.							
CORRECTIVE ACTION-WEAR TO REARFOOT TO- (1) ENSURE PURITY AND DEW POINT OF HELIUM. (2). USE ULTRASONIC CLEANING WHEN PRACTICABLE. (3). USE FIXTURE FOR BEARING LAPPING OPERATION. (4). USE STORAGE DESSICATORS. (5). PERFORM WIRE STRIPPING AND SOLDERING UNDER HOODS. (6). PERFORM ASSEMBLY OPERATION IN PRESSURIZED CLEAN ROOM. (7). USE CEMENT IN PLACE OF SOLDER FOR HOUSING ASSEMBLY. (8). PLATE ALL PARTS SUSCEPTABLE TO CORROSION.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	90-04-069 GYRO-DISPLACEMENT	FAR 7-41015-919	37D 600416	WTR	NO NO		
FAILURE MODE-OUT OF TOLERANCE-PITCH AND YAW GYRO OUTPUT WAS OUT OF TOLERANCE DURING AN APCHE RUN. NOT A GYRO FAILURE E. THE FACTORY CALIBRATION VOLTAGE USED FOR SETTING UP THE GYRO AMPLIFIER GAINS EXHIBITED HIGH INHERENT DRIFT.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-FACTORY VOLTMEETER REPLACED.							097601
AUTOPILOT-ROUND-A/B GYRO PACKAGE	90-04-071 GYRO-DISPLACEMENT/HEATER-FINE	FAR 7-41015-919	57D 800415	WTR	YES NO		097600
FAILURE MODE-ERRATIC OPERATION-DURING TESTING OF THE SYSTEM THE YAW DISPLACEMENT GYRO, FINE HEATER OPERATED INTERMITTENTLY. THE CONNECTION BETWEEN THE HEATER SENSING ELEMENT AND LEADIN WIRE WAS FOUND TO BE CRIMPED OVER THE WIRE INSULATION, MAKING ONLY PARTIAL CONTACT.							
CORRECTIVE ACTION-WEAR TO GYRO VENDOR TO IMPROVE WIRING TECHNIQUE ON GYRO HEATER CONTROLS. ALSO, VENDOR TO INCLUDE CLOSER INSPECTION OF WIRING WORKMANSHIP IN INSPECTION PROCEDURE.							097797
AUTOPILOT-ROUND-A/B GYRO PACKAGE	98-04-068 GYRO-RATE	FAR 7-41015-919	800407	ETR	YES NO		
FAILURE MODE-ERRATIC OPERATION-PITCH RATE GYRO OUTPUT INTERMITTENT DURING GYRO TESTING. FAILURE CAUSED BY AN INTERMITTENT OPEN CIRCUIT IN THE PITCH RATE GYRO. STYCAST 2662 COMPOUND WAS FOUND TO BE UNRELIABLE IN SEPTEMBER 1959.							
CORRECTIVE ACTION-ALL GYRO PACKAGES CONTAINING RATE GYROS WITH SIGNAL GENERATORS POTTED IN STYCAST 2662 WERE RETROFITTED.							097798
AUTOPILOT-ROUND-A/B GYRO PACKAGE	98-04-068 GYRO-DISPLACEMENT	FAR 7-41015-919	800402	WTR	NO NO		
FAILURE MODE-OUT OF TOLERANCE-DURING APACHE DECK 37 CHECKOUT FAILURE INDICATIONS WERE THAT THE YAW GYRO GAIN, DURING TORQUING TESTS, WAS 30 PER CENT LOW AND PITCH GAIN WAS SLIGHTLY OUT OF TOLERANCE.							
CORRECTIVE ACTION-APACHE PROBLEMS CLEARED UP.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AA60-0150/P2-4CO-01-99 MULLING AMPLIFIER	COMPOSITE-B FACT	55D 800325	12	YES NO		
FAILURE MODE-OUT OF TOLERANCE, AUTOPILOT DID NOT SATISFY LOOP TEST FOR ALL PHASES INVOLVING GUIDANCE STEERING COMMANDS BECAUSE GYRO MULLING AMPLIFIER GAINS WERE SET TOO HIGH.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. GYRO MULLING AMPLIFIER GAINS WERE SET TOO HIGH AND WERE OVERRIDING THE GURDA MCE TORQUING VOLTAGES.							

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GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COMPOSITE DELAYED ONE HOUR.							893991
CORRECTIVE ACTION-WALLING AMPLIFIER GAINS WERE RESET AFTER THE FACT TEST.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AERO-0238/FC-4CO-01-61 PITCH BUCKOUT AMPLIFIER	COMPOSITE-FACTORY	61D 600307	FACTORY	NO		898188
FAILURE MODE-OUT OF TOLERANCE. THE BUCKOUT AMPLIFIER WAS NOT PROPERLY ADJUSTED. THIS RESULTED IN THE BOOSTER ENGINE S BEING DRIVEN TO THEIR POSITIVE PITCH LIMITS. WHEN THE GYROS WERE GROUNDED, VARIATIONS WERE GREATER THAN EXPECTED O IN THE PITCH PROGRAM.							
SYSTEM EFFECT-OPERATION TOO HIGH. MISADJUSTED PITCH BUCKOUT AMPLIFIER CAUSED ENGINES TO GO TO THEIR LIMIT.							
VEHICLE EFFECT-COMPOSITE DELAYED. AFTER PITCH BUCKOUT AMPLIFIER WAS ADJUSTED. A FIX RUN WAS MADE WHICH SHOWED PROPER OPERATION.							
CORRECTIVE ACTION-THE AGE PITCH BUCKOUT AMPLIFIER WAS READJUSTED.							898532
AUTOPILOT-ROUND-A/B GYRO PACKAGE	98-04-C27 GYRO-DISPLACEMENT	FAR 7-41015-918	26D 600227	ETR	YES NO		
FAILURE MODE-OPEN (ELECT). FINE HEATER CONTROL CIRCUIT OPEN, CAUSING FINE HEATER CONTINUOUS OPERATION. PITCH DISPLAYMENT GYRO TORQUED EXCESSIVELY DUE TO OVERHEATED DAMPENING OIL.							
CORRECTIVE ACTION-VENDOR IMPROVED MANUFACTURING TECHNIQUES AND INSPECTION PROCEDURES.							897484
AUTOPILOT-ROUND-A/B GYRO PACKAGE	AERO-0198/FC-4CO-01-55 AMPLIFIER	COMPOSITE-FACTORY	55D 600217	FACTORY	NO		
FAILURE MODE-OUT OF TOLERANCE-THE AGE PITCH BUCKOUT AMPLIFIER WAS NOT PROPERLY ADJUSTED. THIS CAUSED THE BOOSTER ENGINES TO BE DRIVEN TO THEIR POSITIVE PITCH LIMITS DURING THE PITCH PROGRAM.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED.							
CORRECTIVE ACTION-PITCH BUCKOUT AMPLIFIER READJUSTED. POST COMPOSITE TESTING REQUIRED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	98-04-034	FAR 7-41015-917	29D 600100	ETR	NO		
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE-GYRO PACKAGE WAS REJECTED AT ETR WHEN TESTED ON CONTROLS MANEUVERS TEST. ANALYSIS AT 80 INDICATED THAT THE GYRO PACKAGE WAS IN SPECIFICATION AND THAT THE ETR TEST SET WAS OUT OF SPECIFICATION.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							890884
	CORRECTIVE ACTION-ETR CONTROLS MANEUVER TEST SET REPLACED.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A2M-27-427/FC-4CO-01-46 AMPLIFIER	COMPOSITE-FACTORY 48D 591119	FACTORY NO				897422
FAILURE MODE-OUT OF TOLERANCE-BOOSTER ENGINE WENT TO LIMIT DURING PITCH PROGRAM. CAUSED BY MISADJUSTED PITCH BUCKOUT Y AMPLIFIER IN GSE.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. ENGINES WENT HARD OVER.							
CORRECTIVE ACTION-PROCEDURE CHANGED TO REQUIRE A GSE PITCH BUCKOUT AMPLIFIER ADJUSTMENT. COMPOSITE REPAIR.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A2M-27-407/FC-4CO-02-43 GYRO-DISPLACEMENT	COMPOSITE-FACTORY 43D 591110	FACTORY NO				897574
FAILURE MODE-OUT OF TOLERANCE-BOOSTER ENGINE WENT TO THE MECHANICAL STOP DURING THE PITCH PROGRAM WHENEVER THE PITCH H GYRO OUTPUT WAS UNGROUNDED. THIS WAS CAUSED BY THE PITCH BUCKOUT AMPLIFIER IN THE AGE BEING OUT OF ADJUSTMENT.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. BOOSTER ENGINES WENT TO LIMIT DURING PITCH PROGRAM.							
CORRECTIVE ACTION-BUCKOUT AMPLIFIER IN AGE RE-ADJUSTED.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	98-04-D23 AMPLIFIER	FAR 7-41015-897	590919	ETM	YES	60/C NO	898343
FAILURE MODE-OPEN (ELECTI-TERMINAL 98 OF AMPLIFIER AR-104 BROKEN OFF. PITCH SUMMING CIRCUIT OPEN.							
CORRECTIVE ACTION-INSPECTION OF ELECTRONIC ASSEMBLIES TIGHTENED. GYRO PACKAGES OPENED FOR INSPECTION UPON COMPLETION N OF PVT.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A2M-27-313/FC-4CO-LS-28	COMPOSITE-FACTORY 28D 590829	FACTORY NO				
FAILURE MODE-CONTAMINATION. DIRTY TEST PROGRAMMER TAPES CAUSED FAILURE OF THE BOOSTER ENGINES TO RESPOND TO PROGRAM AND GYRO GROUNDING.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. DIRTY PROGRAMMING TAPES CAUSED PREMATURE VECO.							

15 JUN 1966

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	VEHICLE EFFECT-COMPOSITE DELAYED OR RESCHEDULED. RETURN OF COMPOSITE MADE. CORRECTIVE ACTION-TEST TAPES CLEANED. RE-RUN SATISFACTORY.						090356
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTA5018/P2-303-00-06 GYRO-PITCH RATE	COUNTDOWN	8C 590716	12	YES NO		090354
	FAILURE MODE-FAIL DURING OPERATION. DURING PRE-COUNT OPERATIONS, THE RATE GYRO TEST INDICATED THAT THE PITCH RATE GYRO HAD NO OUTPUT. SYSTEM EFFECT-OPERATION DOES NOT START. VEHICLE EFFECT-NONE. CORRECTIVE ACTION-A NEW GYRO CANISTER WAS INSTALLED.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	A2M-P7-257/PC-4CC-01-21 ROLL DISPLACEMENT GYRO	COMPOSITE-FACTORY	21D 590522	FACTORY	YES NO		090363
	FAILURE MODE-FAIL DURING OPERATION. -THE ROLL DISPLACEMENT GYRO EXHIBITED SLOW RESPONSE TO MULLING SIGNALS. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-GYRO OUTPUT IMPROPER DUE TO SLOW RESPONSE. VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE RETEST PERFORMED. CORRECTIVE ACTION-GYRO CANISTER REPLACED.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTA4890/P2-301-00-06	FRF	8C 590522	ETR	YES NO		090377
	FAILURE MODE-OUT OF TOLERANCE. ROLL RATE GYRO SIGNAL AMPLIFIER DATA APPEARED QUESTIONABLE. TELEMETRY DATA AGREED WITH LANDLINE DATA. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. VEHICLE EFFECT-NONE. CORRECTIVE ACTION-AMPLIFIERS NO.12 AND 16 IN TEST EOPT INTERCHANGED.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	98-04-008 GYRO-RATE	FAR 7-41018-898	3D 590500	ETR	YES NO		
	FAILURE MODE-FAILED DURING OPERATION. DURING AUTOPILOT END TO END GAIN CHECKS THERE WAS NO SIGNAL OUTPUT FROM THE GYRO SIGNAL AMPLIFIER. THE YAW RATE GYRO WAS AUDIBLE NOISY AND SUSPECTED OF CAUSING T102 AND T103 TRANSFORMERS TO BURST OUT.						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-FINAL CLEANUP INSPECTION INITIATED OF ALL ELECTRONIC CANISTERS. GYRO CANISTERS OPENED FOR INSPECTION FOLLOWING PRODUCTION VIBRATION TESTING.						090230
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTAA700/P3-401-00-03 ROLL GYRO AMPLIFIER	FRF	30 590327	13	YES NO		091146
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. VERNIER ENGINES DID NOT RESPOND TO ROLL PROGRAM DURING LOOP TEST B BECAUSE THE ROLL GYRO AMPLIFIER OUTPUT TO THE VERNIERS WAS GROUND.						
	SYSTEM EFFECT-OPERATION DOES NOT START. THE VERNIER ENGINES DID NOT RESPOND TO THE ROLL PROGRAM.						
	VEHICLE EFFECT-NONE.						
	CORRECTIVE ACTION-UNGROUND AMPLIFIER OUTPUT.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTAA566/P1-28N-01-11 RATE GYRO CANISTER	COMPOSITE-B FACT	11B 590109	11 -5400	YES NO		092710
	FAILURE MODE-OUT OF SPECIFICATION. UNINSULATED CANISTER RESULTED IN INADEQUATE HEATING AND CAUSED GYRO TORQUING RATES TO BE OUT OF SPECIFICATION.						
	SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. GYRO TORQUING RATES WERE OUT OF SPECIFICATION.						
	VEHICLE EFFECT-NONE.						
	CORRECTIVE ACTION-THE CANISTER WAS INSULATED PRIOR TO FLIGHT.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTAA4413/P1-202-00-10	FRF	10B 591210	11/ETR	YES NO		093609
	FAILURE MODE-ERRATIC OPERATION. OSCILLATIONS OCCURRED IN THE ROLL CHANNEL DURING THE LOOP TEST OF THIS TEST AND TEST P1-201-00-10. THE OSCILLATIONS OCCUR DURING VERNIER OPERATION AS IN THE ROLL PROGRAM. THE APPARENT PROBLEM IS MECHANICAL FEED BACK FROM THE VERNIERS TO THE ROLL RATE GYRO.						
	SYSTEM EFFECT-ERRATIC OPERATION. OSCILLATIONS IN THE ROLL CHANNEL DURING THE LOOP TEST ON THIS TEST AND TEST P1-201-00-10.						
	VEHICLE EFFECT-NONE.						
	CORRECTIVE ACTION-NONE. THESE OSCILLATIONS HAVE BEEN OBSERVED ON OTHER MISSILES.						
							PAGE 0066

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZM-7-646/PC-SC0-018-03 AMPLIFIER	COMPOSITE-FACTORY 7-41013	SC 581113	FACTORY	YES NO		987409
FAILURE MODE-OUT OF TOLERANCE OR SPECIFICATION. PITCH AND YAW TORQUING RATES TOO HIGH. CAUSED BY HIGH DISPLACEMENT GAINS.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. HIGH GAINS OF DISPLACEMENT GYRO AMPLIFIER CAUSED TORQUING RATES TO BE OUT OF TOLERANCE.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SATISFACTORY SYSTEM AND COMPOSITE RETESTING WAS PERFORMED.							
CORRECTIVE ACTION-THE DISPLACEMENT GAINS WERE RESET WITHIN TOLERANCE.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTA4323/PI-203-00-9 YAW RATE GYRO	FRF	98 581027	11	YES NO		990983
FAILURE MODE-FAILED DURING OPERATION. AT BECO AND CONTINUING FOR 1: SECONDS, THE YAW RATE GYRO OUTPUT SHIFTED AN AMOUNT EQUIVALENT TO 1.44 DEG./SEC. RATE AND REMAINED THERE INDICATING THE GYRO WAS STICKING. THIS WAS CONFIRMED BY POST TEST LAB CHECKS.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-REPLACE GYRO CANISTER.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTA4311/PI-201-00-9	FRF	98 581014	11	YES NO		990983
FAILURE MODE-ERRATIC OPERATION. DURING THE LOOP TEST, OSCILLATIONS APPEARED IN THE ROLL CHANNEL CAUSING OSCILLATION OF THE VERNIER ENGINES. TO ELIMINATE THIS, THE ROLL GYRO SIGNAL PATH WAS DISABLED. THE OSCILLATIONS RECURRED AND IT WAS DISCOVERED THAT ONLY ONE OF THE TWO ROLL GYRO SIGNAL AMPLIFIER OUTPUTS HAD BEEN DISABLED.							
SYSTEM EFFECT-ERRATIC OPERATION. OSCILLATIONS APPEARED IN THE ROLL CHANNEL CAUSING OSCILLATIONS OF THE VERNIER ENGINES.							
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD TIME 29 MINUTES.							
CORRECTIVE ACTION-UNKNOWN. NOT A FLIGHT PROBLEM.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZM-7-646/PC-SC0-03-03 GYRO-DISPLACEMENT	COMPOSITE-FACTORY 581012	SC 581012	FACTORY	NO NO	7-41013	
FAILURE MODE-OUT OF TOLERANCE. PITCH GYRO DRIFT OUT OF TOLERANCE DUE TO PICKUP ON THE GYRO INPUT LEADS, FROM THE TEST EQUIPMENT.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER	DIP DATA SOURCE	VEHICLE	SITE	PRI	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE	DIP TIME	OTH	VENDOR PART NO
SYSTEM EFFECT-OPERATION TOO HIGH. GYRO DRIFT WAS HIGHER THAN NORMAL.						
VEHICLE EFFECT-COMPOSITE DELAYED. COMPOSITE DELAYED DUE TO INVESTIGATIVE TESTING.						
CORRECTIVE ACTION-UNKNOWN. INVESTIGATION REVEALED DRIFT WAS DUE TO NOISE PICKUP FROM TEST EQUIPMENT.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZH-7-637/FC-2CH-03-10 HEATER	COMPOSITE-FACTORY	10B 581009	YES 60/C NO		
FAILURE MODE-OUT OF TOLERANCE. PITCH AND YAW GYRO TORQUING RATES WERE BELOW TOLERANCE DUE TO AN INADEQUATE GYRO HEATING SYSTEM. IT WAS DETERMINED THAT WHEN THE CANISTER IS PLACED IN A COOLED ENVIRONMENT, HEAT FROM THE COURSE HEATER FLOWS ACROSS THE FINE HEATING ELEMENT, WHICH CONSEQUENTLY SENSES A TEMPERATURE WARMER THAN THE ACTUAL GYRO TEMPERATURE.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. -COLD ENVIRONMENT CAUSED GYRO TORQUING RATES TO BE TOO LOW.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-UNKNOWN. NONE IN THE FACTORY-PROBLEM WAS TO BE CORRECTED IN THE FIELD BY EITHER REWIRING THE HEATER SYSTEM OR INSULATING THE CANISTER TO ELIMINATE THE UNDESIRABLE EXTERNAL COOLING EFFECTS. COMPOSITE RETEST PERFORMED.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZH-7-638/FC-2CO-01A-13 HEATER	COMPOSITE-FACTORY	13B 580918	FACTORY NO	YES 60/C NO	7-41015
FAILURE MODE-OUT OF TOLERANCE- PITCH AND YAW GYRO TORQUING RATES WERE BELOW TOLERANCE DUE TO AN INADEQUATE GYRO HEATING SYSTEM. IT WAS DETERMINED THAT WHEN THE GYRO PACKAGE IS PLACED IN A COOLED ENVIRONMENT, HEAT FROM THE COURSE HEATERS FLOW ACROSS THE FINE HEATING ELEMENT, WHICH CONSEQUENTLY SENSES A TEMPERATURE WARMER THAN THE ACTUAL GYRO TEMPERATURE.						
SYSTEM EFFECT-OPERATION TOO LOW.						
VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED OR RESCHEDULED. COMPOSITE RETEST DELAYED DUE TO TESTING PERFORMED TO INVESTIGATE PROBLEM.						
CORRECTIVE ACTION-UNKNOWN. PROBLEM WAS TO BE CORRECTED IN THE FIELD BY EITHER REWIRING THE HEATER SYSTEM OR INSULATING THE CANISTER TO ELIMINATE THE UNDESIRABLE EXTERNAL COOLING EFFECTS.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTA4189/P1-202-00-03	FRF	5B 580820	11/ETR NO	YES NO	
FAILURE MODE-ERRATIC OPERATION. OSCILLATIONS WERE OBSERVED IN ALL CHANNELS DURING THE LOOP TEST.						
SYSTEM EFFECT-ERRATIC OPERATION.						
VEHICLE EFFECT-NONE.						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-UNKNOWN.							893306
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZC-7-800/P1-208-00-3 YAW RATE GYRO SPIN MOTOR	FLIGHT	3B 580719	11 1	YES NO		896646
FAILURE MODE-FAIL DURING OPERATION. THE YAW RATE GYRO WAS DISABLED DURING THE FLIGHT BECAUSE OF THE FAILURE OF THE SPIN MOTOR.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-IMPROPER YAW CONTROL SIGNALS WERE SENT TO THE BOOSTER ENGINES RESULTING IN THE LOSS OF VEHICLE STABILITY.							
VEHICLE EFFECT-LOSS OF VEHICLE STABILITY, BECAUSE OF THE EXCESSIVE LOADING CAUSED BY THE VIOLENT MANEUVERING AFTER THE LOSS OF VEHICLE STABILITY, MISSILE BREAKUP OCCURRED AT 41 SECONDS.							
CORRECTIVE ACTION-SPIN MOTOR ROTATION DETECTORS HAVE BEEN INCORPORATED.							897813
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTAE382/P4-102-00-12	COUNTDOWN	12A 571217	14 -13500	YES NO		
FAILURE MODE-OUT OF SPECIFICATION. INDICATED GAIN PROBLEM IN ROLL GYRO.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COUNTDOWN DELAYED. 10 MIN HOLD FOR AUTOPILOT.							
CORRECTIVE ACTION-NONE.							895208
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZC-7-093-12A/P4-102-00-12 GYRO	FLIGHT	12A 571217	14 NO	NO NO		
FAILURE MODE-OUT OF EXPECTED TEST VALUE. TRAJECTORY DATA SHOWS THAT THE MISSILE HAD A YAW DISPERSION OF 10,000 FEET AT BECO. COMPUTATION OF AZIMUTH ERROR VERSUS TIME DURING POWERED FLIGHT SHOWS THIS ERROR ANGLE TO BE ESSENTIALLY CONSTANT. THE ERROR IS ATTRIBUTED TO AN INITIAL OFFSET ERROR FROM AN UNDETERMINED SOURCE.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-IMPROPER TRAJECTORY. TRAJECTORY DATA SHOWS A YAW DISPERSION OF APPROXIMATELY 10,000 FEET AT BECO.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FTAE427/P2-104-00-10	COUNTDOWN	10A 571216	12 -17820	YES NO		
FAILURE MODE-OUT OF EXPECTED TEST VALUE. AUTO PILOT GYRO CANISTER WAS CAUSING EXCESSIVE NOISE ON TELEMETRY RF 3 CHANNEL C.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-NONE.							897400
VEHICLE EFFECT-COUNTDOWN DELAYED. APPROXIMATELY 292 MINUTES OF HOLD TIME TO INVESTIGATE PROBLEM, CORRECT, AND CATCH UP WITH COUNT.							
CORRECTIVE ACTION-REPLACE GYRO CANISTER.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	FT42427/P2-104-00-10 GYRO-DISPLACEMENT, PITCH	COUNTDOWN	10A 571216	12 -12000	YES NO		897401
FAILURE MODE-FAIL DURING OPERATION. PITCH GYRO APPEARED TO STICK DURING GYRO STICKION TEST.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED. 12 MINUTES OF HOLD SHARED WITH FUEL LEAKAGE PROBLEM. COUNTDOWN TH EN ABORTED DUE TO BOTH PROBLEMS.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZN-7-493/FC-1CO-03-14	COMPOSITE-FACTORY	14A 571014	FACTORY	NO NO		898379
FAILURE MODE-ERRATIC OPERATION-AT 71 SECONDS ERRATIC OPERATION OF ALL A/P SANGORN CHANNELS WAS INDICATED BECAUSE TH E OPERATOR PLACED THE ROLL BIAS SWITCH TO THE CCM POSITION INSTEAD OF OFF.							
SYSTEM EFFECT-ERRATIC OPERATION							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE RETEST (PARTIAL) WAS REQUIRED.							
CORRECTIVE ACTION-OPERATOR CAUTIONED TO EXERCISE GREATER CARE WHEN OPERATING SWITCH.							
AUTOPILOT-ROUND-A/B GYRO PACKAGE	ZN-7-473/FC-1CO-03-09	COMPOSITE-FACTORY	9A 570823	FACTORY	NO NO		898153
FAILURE MODE-FAIL DURING OPERATION-CROSS-COUPLING OF 0.2 VOLTS WAS EVIDENT ON THE PITCH AND YAW GYRO OUTPUTS AT THE BEGINNING AND END OF ROLL GYRO TORQUING.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED OR RESCHEDULED-NUMEROUS RETESTS WERE PERFORMED IN AN ATTEMPT TO DETERMINE THE CAUSE.							
CORRECTIVE ACTION-OUTPUTS OF THE TORQUER AMPS AND CATHODE FOLLOWERS WERE FREE OF CROSS COUPLING. THEREFORE THE PROBLEM WAS BELIEVED TO ORIGINATE IN THE AGE. THE MISSILE WAS ACCEPTED WITH THE PROBLEM UNRESOLVED.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VEHICLE NAME VEHICLE PART NO
AUTOPILOT-ROUND-A/E GYRO PACKAGE	EN-433/106,D-4	CAPTIVE	SA 370527	BYC	YES NO	995900
FAILURE MODE-OUT OF SPECIFICATION. THE GAINS WERE 0.833 VOLTS/SEC FOR PITCH AND 0.87 VOLTS/SEC FOR YAW. NOMINAL DES 1GM IS 0.94 FOR PITCH AND 0.99 FOR YAW.						
SYSTEM EFFECT-OPERATION TOO LOW. THE END TO END GAINS OF THE FLIGHT CONTROL SYSTEM WERE TOO LOW.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-ROUND-A/B GYRO PACKAGE	SP-9D-04-3347F DISPLACEMENT GYRO	FAR 27-41002-909	128D	WTR	NO NO	994733
FAILURE MODE-OUT OF TOLERANCE-GYRO PACKAGE 1R/D FOR EXCESSIVE YAW HALL VOLTAGE. THE DISP. GYRO PACKAGE FAILURE WAS NOT CONFIRMED. THE FAULT WAS TRACED TO THE REMOTE THREE-RATE GROUP. (REF.SP-9D-04-3330).						
CORRECTIVE ACTION-NO CORRECTIVE ACTION WITH RESPECT TO GYROSCOPE CANISTER BECAUSE THERE WAS NO FAILURE OF PART.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOPAMP	BZ-4HO-02-41 COAX-CONNECTOR	COMPOSITE-FRD/DPL	41D 850323	B-2	NO NO	996440
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. BOOSTER ENGINES NOT MATED IN PITCH DUE TO A FAULTY CONNECTION IN COAX CONNECTOR 304J9.						
SYSTEM EFFECT-OPERATION DOES NOT START. FLIGHT CONTROL FAULT ON LAP.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-RESORDERED CONNECTION AT COAX CONNECTOR 304J9 AT LAUNCHER.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOPAMP	DS-402-00-166 COMPARATOR	COMPOSITE-FRD/DPL	166D 650112	B-1	NO NO	996306
FAILURE MODE-FAIL DURING OPERATION. Y2 YAW BIAS FAULT LIGHT ON THE LAP DURING LOOP TEST WAS RECEIVED.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. NORMALLY OPEN CONTACTS WOULD NOT CLOSE PROPERLY. THE GIMBAL COMPARTOR WAS NOT SUPPLIED WITH THE PROPER REFERENCE VOLTAGE FOR THE BIAS PROGRAM.						
VEHICLE EFFECT-LAUNCH COMPOSITE DELAYED.						
CORRECTIVE ACTION-CONTACTS BURNISHED.						

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SYSTEM S/B-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-JA-04-4832F INTEGRATOR MOTOR TRANSFORMER	FAR 7-41661-3	172D 631203	FACTORY	YES NO	SCHAEVITZ EMG1 NO MEERING	893444
FAILURE MODE-FAIL TO OPERATE. THE INTEGRATOR MOTOR GENERATOR FAILED WHILE INSTALLED IN THE AUTOPILOT ON MISSILE 172 D. THE FAILURE WAS CAUSED BY AN OPEN CIRCUIT IN THE PRIMARY OF THE ROTARY VARIABLE DIFFERENTIAL TRANSFORMER. SEVERAL TURNS IN THE OUTER LAYER OF THE PRIMARY WERE BROKEN. ADDITIONALLY, THE CORE OF THE TRANSFORMER WAS BROKEN. THE PART NUMBER OF THE TRANSFORMER WAS R3B18C. IT WAS MANUFACTURED BY SCHAEVITZ ENGINEERING.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT FOUND.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4559-F MOTOR-GENERATOR	FAR 7-41661-3	631112	FACTORY	YES NO	KEARFOTT NO R800-1A	892637
FAILURE MODE-FAIL DURING OPERATION. THE MOTOR-GENERATOR REPORTEDLY FAILED DURING FACTORY CHECKOUT WHEN THE ROLL INTEGRATOR WOULD NOT NULL.							
CORRECTIVE ACTION-NONE. THIS REPORTED FAILURE WAS NOT CONFIRMED. FUNCTIONAL TESTING OF THE MOTOR GENERATOR REVEALED NO DISCREPANCIES.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4503-F RESISTOR ASSEMBLY	FAR 7-41772-3	631031	FACTORY	YES NO		891737
FAILURE MODE-OUT OF TOLERANCE. RESISTANCE BETWEEN PINS 18 AND 21 READ 6.5 KILOHMS. ALLOWABLE RANGE IS 14.8 TO 15.1 KILOHMS. FAILURE WAS CAUSED BY SHORTED WINDINGS. DURING THE DEPOSITING PROCESS, THE IDENTIFYING MARKS OF THE MANUFACTURER WERE REMOVED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION COULD BE TAKEN SINCE VENDOR WAS NOT KNOWN. SINCE THIS WAS THE ONLY FAILURE OF THE RESISTOR ASSEMBLY, IT WAS CONSIDERED AN ISOLATED FAILURE.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4484-F INTEGRATOR MOTOR GENERATOR	FAR 7-41661-3	631029	FACTORY	YES NO	KEARFOTT NO R-800-1A	891423
FAILURE MODE- OUT OF TOLERANCE. INTEGRATOR MOTOR GENERATOR REQUIRED 18.5 VOLTS RMS TO START TURNING COUNTERCLOCKWISE, AND 18.3 VOLTS RMS TO START COUNTERCLOCKWISE. IT SHOULD START AT 10 VOLTS RMS. SUBSEQUENT TESTING REVEALED THAT THE FAILURE WAS CAUSED BY TOO TIGHT A FIT BETWEEN THE GEAR TRAIN OUTPUT SHAFT AND THE SHAFTS BUSHING.							
CORRECTIVE ACTION-FAILURE WAS CLASSIFIED AS AN ISOLATED CASE, AND NO CORRECTIVE ACTION WAS REQUIRED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4403-F SERVOAMPLIFIER-CALIBRATION RESISTO 27-41301-1 R	FAR 7-41895-3	630815	FACTORY	YES NO		893175
FAILURE MODE-OUT OF TOLERANCE. SERVOAMPLIFIER WAS IR/D FOR LOW GAIN. THE AMPLIFIER WAS DEPOTTED AND IT WAS FOUND TH AT CALIBRATION RESISTOR R-224 HAD NEVER BEEN INSTALLED.							
CORRECTIVE ACTION-RAR A-99-04-3768 WRITTEN TO INSTRUCT MANUFACTURING PERSONNEL TO ADHERE TO MANUFACTURING SPECIFICA TIONS AND TO IMPROVE THEIR INSPECTION OF THIS UNIT. REF MIL-T-FBP.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4450-F AMPLIFIER-MCD-DEMOD.	FAR 7-41895-3	630812	FACTORY	YES NO		893451
FAILURE MODE- OUT OF TOLERANCE. THE MODULATOR-DEMODULATOR AMPLIFIER ASSEMBLY COULD NOT BE NULLED. IN UNIT S/N 646 R EXISTOR R-1101 HAD AN INCORRECT VALUE OF 10 K OHMS INSTEAD OF 40 K OHMS.							
CORRECTIVE ACTION-NONE. THESE UNITS NO LONGER MADE.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4450-F AMPLIFIER	FAR 7-41895-3	630808	FACTORY	YES NO		893452
FAILURE MODE-OUT OF TOLERANCE. THE MODULATOR- DEMODULATOR AMPLIFIER ASSEMBLY COULD NOT BE NULLED. IN UNIT S/N 651 A MISWIRING WAS FOUND. WIRE FROM PIN E WAS INCORRECTLY CONNECTED TO POINT 11 (WAS 7-41165 AND 7-41895).							
CORRECTIVE ACTION-NONE. THESE UNITS NO LONGER MADE.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4321-F TACHOMETER	FAR 7-41660-1	630307	FACTORY	YES NO	YES KEARFOTT NO R800-1A	891342
FAILURE MODE-ERRATIC OPERATION. MOTOR- GENERATOR FAILED WHEN TACHOMETER OUTPUT WAS ERRATIC. FAILURE CONFIRMED BUT C AUSE OF FAILURE NOT DETERMINED BY FAILURE ANALYSIS. MOST PROBABLE CAUSE OF FAILURE IS CONTAMINATION LOST DURING DISA SSEMBLY.							
CORRECTIVE ACTION-VENDOR CONTACTED. NO POSITIVE CORRECTIVE ACTION SINCE CAUSE OF ERRATIC TACHOMETER WAS NOT DETERMI NED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4289F AMPLIFIER/DIODE	FAR 27-41301-1	630304	FACTORY	YES NO		693042
FAILURE MODE-OUT OF TOLERANCE. TWO SERVO AMPLIFIERS WERE REJECTED FOR OUT-OF-TOLERANCE OUTPUT CURRENT. THE FAILURES WERE DUE TO DEFECTIVE DIODES IN THE CR201 POSITION. ONE WAS OPEN AND ONE WAS SHORTED. BOTH DIODES APPEARED TO HAVE BEEN DAMAGED BY EXCESS VOLTAGE OR CURRENT. THE CAUSE OF THE DAMAGE WAS NOT LEARNED.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-4162-F MOTOR GENERATOR-TRANSFORMER	FAR 7-41661-3	630122		YES NO	YES KEARFOY	694621
FAILURE MODE-OUT OF TOLERANCE. TWO INTEGRATOR MOTOR GENERATORS HAD HIGH NULL READINGS FROM THE ROTARY DIFFERENTIAL TRANSFORMER. ANALYSIS CONFIRMED THE FAILURES BUT THE CAUSE COULD NOT BE DETERMINED.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AX62-0070/FC-4CO-03-0502-002 AMPLIFIER	COMPOSITE-FACTORY	1160 621203	FACTORY	NO NO	NO GO/C	699767
FAILURE MODE-ERRATIC OPERATION. NUMEROUS GLITCHES WERE INDICATED ON CHANNEL 1, (VERNIER NO.1 YAW), THE VERNIER NO.1 YAW ISOLATION AMPLIFIER WAS REPLACED IN GSE.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-COUNTDOWN RESCHEDULED. RE-RUN OF COMPOSITE REQUIRED.							
CORRECTIVE ACTION-ISOLATION AMPLIFIER WAS REPLACED IN GSE.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	SP-98-04-3335F AMPLIFIER	FAR 27-41000-851	1790 620616	ETR	NO YES	NO GO/C	694347
FAILURE MODE-FAIL DURING OPERATION. THE SERVO AMPLIFIER WAS IR/D FOR A REPORTED NO OUTPUT FROM THE BOOSTER ROLL FILTER. THE FAILURE WAS NOT CONFIRMED. HOWEVER THE IRREGULARITY WAS TRACED TO AN ERROR IN THE SPECIAL INSTRUMENTATION WIRING IN THE GSE.							
CORRECTIVE ACTION-NONE, AS THE SPECIAL INSTRUMENTATION WAS REMOVED FROM THE MISSILE.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER	DIP DATA SOURCE	VEHICLE	SITE	PRI	OTH	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE	TIME	DIP		VENDOR PART NO
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	HC-98-04-3331F TRANSISTOR-AMPLIFIER	FAR 27-41000-843	113D 620815	ETR	YES	NO	094725
FAILURE MODE-ERRATIC OPERATION. THE PITCH D-C AMPLIFIER OUTPUT WAS FOUND NOISY. ONE-HUNDRED MILLIVOLTS 150 KILOCYCL ES OSCILLATION WAS MEASURED AT AMPLIFIER OUTPUT. REPLACEMENT OF TRANSISTOR 83 (8N343) IN THE D-C AMPLIFIER P/N 27-41 336-803 ELIMINATED THIS HIGH FREQUENCY OSCILLATION.							
CORRECTIVE ACTION-FLIGHT CONTROLS GROUP STUDYING SOURCE OF HIGH FREQUENCY OSCILLATIONS. THE EOP WAS MODIFIED TO LIM IT TOTAL AMPLITUDE OF NOISE BETWEEN THE FREQUENCY RANGE OF 10 KILOCYCLES TO 1 MEGACYCLE TO 25 MILLIVOLTS.							
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	SP-98-04-3385F	FAR 27-41000-851	179D 620815	ETR	YES	NO	094808
FAILURE MODE-ERRATIC OPERATION-THE SERVO-AMP.-FILTER PACKAGE WAS IN/D FOR ERRATIC SUSTAINER PITCH OUTPUT. EXTENSIVE AND DESTRUCTIVE TESTS ON THIS UNIT FAILED TO CONFIRM THIS REPORTED FAILURE.							
CORRECTIVE ACTION-NONE.							
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	SP-98-04-3364F AMPLIFIER-TRANSFORMER	FAR 27-41000-851	179D 620803	ETR	YES	NO	094871
FAILURE MODE: ERRATIC OPERATION. THE SERVOAMPLIFIER WAS REJECTED WHEN ERRATIC MOTION IN THE YAW CHANNEL FOLLOWED BY TOTAL LOSS OF CONTROL WAS OBSERVED. FAILURE WAS TRACED TO SHORT-CIRCUIT IN TRANSFORMER T2. NUMEROUS OTHER COMPONENT S DAMAGED AS A RESULT OF FAILURE OF T2. CAUSE OF FAILURE WAS POOR IMPREGNATION OF WINDINGS.							
CORRECTIVE ACTION-THIS IS A RECURRING PROBLEM. S.I. 118-62 AND 121-62 ISSUED TO FIND FAULTY TRANSFORMERS.							
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	SP-98-04-3321F AMPLIFIER-DIODE	FAR 27-41000-851	179D 620806	ETR	YES	NO	095077
FAILURE MODE-ERRATIC OPERATION. SERVOAMPLIFIER PACKAGE IN/D FOR ERRATIC OPERATION. ELECTRICAL TESTS REVEALED THREE DEFECTIVE DIODES IN THE OUTPUT OF THE VERNIER ROLL D-C AMPLIFIER.							
CORRECTIVE ACTION-NOT KNOWN.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTM	VENDOR NAME VENDOR PART NO	
AUTOPLOT-ROUND-A/B FILTER AND SERVOMP	SP-93-04-338F SERVOAMPLIFIER-DIODE	FAR 27-41000-831	1790 620808	E/R	YES NO		894702
FAILURE MODE-OUT OF TOLERANCE. THE SERVOAMPLIFIER WAS REJECTED AFTER THE VERNIER ENGINES INDICATED AN UNEXPECTED ROLL FROM 33 TO 42.7 DEGREES. TESTS REVEALED 3 OUT OF 4 ZENER DIODES IN VERNIER ROLL D-C AMPLIFIER HAD OUT-OF-TOLERANCE REVERSE CHARACTERISTICS. PROBABLY CAUSED BY EXCESSIVE VOLTAGE BEING APPLIED.							
CORRECTIVE ACTION-BASE PERSONNEL ARE TAKING STEPS TO ELIMINATE THE POSSIBILITY OF INJECTING SPURIOUS VOLTAGES TO SYSTEM.							
AUTOPLOT-ROUND-A/B FILTER AND SERVOMP	A882-0891 ME-402-00-141 FILTER	FLIGHT	1410 620712	B-2 D.	YES NO		896011
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING THE FIRST 50 SECONDS OF FLIGHT ENGINE RESPONSE IN YAW WAS GREATLY ATTENUATED APPARENTLY DUE TO THE LOSS OF THE STABILIZATION FILTER OUTPUT. BESIDE FAILURE OF THE FILTER ITSELF, OTHER CAUSES MAY HAVE BEEN IN A CONNECTOR OR HARNESS OR FAILURE OF PROGRAMMER SWITCH 45.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. YAW CONTROL WAS MARGINAL DURING THE FIRST 50 SECONDS OF FLIGHT. AFTER 50 SECONDS WHEN THE FILTER OUTPUT SIGNAL WAS ACQUIRED, SYSTEM PERFORMANCE WAS SATISFACTORY.							
VEHICLE EFFECT-NONE. SINCE THERE WERE NO SIGNIFICANT DISTURBANCES TO THE MISSILE EARLY IN THE FLIGHT, ACQUISITION OF CONTROL IN THE YAW CHANNEL AT 50 SECONDS WAS SATISFACTORY FOR OVER-ALL MISSION ACCOMPLISHMENT.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-ROUND-A/B FILTER AND SERVOMP	SP-90-04-3320F CIRCUIT BOARD-TRANSISTOR	FAR 27-41000-849	1190 620703	WTR	NO NO		896074
FAILURE MODE-FAIL DURING OPERATION. IN BOOSTER NO. 2 YAW SERVO MP-1 A882 CIRCUIT BOARD (P/N 27-41381-903) THE TRANSISTOR 83 WAS FOUND TO HAVE AN OPEN EMITTER, CAUSED BY SHORT EXTERNAL TO THE CANISTER.							
CORRECTIVE ACTION-TWO SENT TO SITE PERSONNEL TO USE EXTREME CARE WHEN CHECKING OUT COMPLETE CIRCUITS OR TROUBLE SHOOTING.							
AUTOPLOT-ROUND-A/B FILTER AND SERVOMP	SP-93-04-3380F CIRCUIT BOARD-DIODE	FAR 27-41000-848	1190 620703	WTR	NO NO		
FAILURE MODE-SHORTCIRCUIT IN BOOSTER NO 2. YAW SERVO- AMPLIFIER A882 CIRCUIT BOARD (P/N 27-41381-903) THE DIODE CR-3 WAS SHORTED AND BURNED. CAUSED BY SHORT CIRCUIT EXTERNAL TO SYRO PACKAGE.							

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CORRECTIVE ACTION-TWR SENT TO SITE PERSONNEL TO USE EXTREME CARE IN CHECKING COMPLEX SYSTEMS OR TROUBLE SHOOTING.						
806073						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	SP-9D-04-3320F CIRCUIT BOARD-DIODE	FAR 27-41000-848	119D 620703	WTR	NO	60/C NO
806073						
FAILURE MODE-FAIL DURING OPERATION. BOOSTER 1 PITCH SERVO-AMPLIFIER, ASAR CIRCUIT BOARD (P/N 27-41361-603) DIODE CR S WAS OPEN-CIRCUITED CAUSED BY SHORT CIRCUIT EXTERNAL TO CANISTER.						
CORRECTIVE ACTION-TWR SENT REMINDING SITE PERSONNEL TO USE CARE WHEN C/O OF COMPLEX SYSTEMS IS MADE.						
803899						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	SP-9D-04-3320F A-2 CIRCUIT BOARD-TRANSISTOR	FAR 27-41000-848	119D 620703	WTR	NO	NO
FAILURE MODE-FAIL DURING OPERATION. IN BOOSTER NO.2 YAW SERVOAMPLIFIER, CIRCUIT BOARD (P/N 27-41361-603) THE TRANSI STOR Q3 WAS FOUND SHORTED. CAUSED BY SHORT CIRCUIT EXTERNAL TO CANISTER.						
CORRECTIVE ACTION-TWR SENT TO SITE REMINDING WHEN TO USE EXTREME CARE IN C/O OF COMPLEX CIRCUITS OR DURING TROUBLE SHOOTING.						
803896						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	SP-9D-04-3320F POWER SUPPLY TRANSFORMER	FAR	119D 620703	WTR	NO	NO
FAILURE MODE-FAIL TO OPERATE. SERVOAMPLIFIER FAILED TO HALL ENGINES UPON RECEIPT OF HALL SIGNAL FROM SYRO. POWER SU PLY BOARD (27-41783-1) HAD TRANSFORMER T1 WITH OPEN-CIRCUIT PRIMARY WINDINGS IN ALL THREE PHASES. CAUSED BY SHORT-C IRCUITING SERVO OUTPUTS EXTERNAL TO CANISTER.						
CORRECTIVE ACTION-PERSONNEL AT TEST SITE CAUTIONED TO USE EXTREME CARE DURING PERFORMANCE OF COMPLEX SYSTEM CHECKS OR TROUBLESHOOTING. ALSO REF. (TWA 378-368 20F 2 MARCH 62).						
806374						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-99-04-3251-F INTEGRATOR TRANSFORMER	FAR 7-41661-3	620814	FACTORY	YES	NO
FAILURE MODE-FAIL TO OPERATE. NO YAW OUTPUT. DAMAGE TO SCREWS AND POOR SOLDERING INTERNALLY INDICATED UNIT HAD BEEN OPENED PREVIOUSLY. A BROKEN WIRE IN A TRANSFORMER CIRCUIT ACCOUNTED FOR THE FAILURE. THIS COMPONENT WAS APPARENTLY RETURNED FROM THE FIELD.						
CORRECTIVE ACTION-MORE BECAUSE EXACT REASON FOR BROKEN WIRE NOT DETERMINED.						
						PAGE 0077

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AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	A-98-04-3229F SERVOAMPLIFIER	FAR 27-41000-631	54P 620502	ALTUS	YES NO	60/C	894595
FAILURE MODE-OUT OF TOLERANCE-THE SERVO AMPLIFIER HAD LOW NO-608 ON MAPCHE CHECK OUT OF SUSTAINER YAW-FREQUENCY RESPONSE.							
CORRECTIVE ACTION-UNKNOWN. FAILURE UNCONFIRMED.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AE81-0964/FCA-4CO-03-140	COMPOSITE-FACTORY	140D 611008		YES NO		899455
FAILURE MODE-FAIL DURING OPERATION- YAW INTEGRATOR IN PROGRAMMER- INTEGRATOR- SERVO CANISTER WAS LIMITING AT APPROXIMATELY 4.6 VOLTS WHICH IS NOT ENOUGH TO GIVE A HIGH SIGNAL.							
SYSTEM EFFECT-OPERATION TOO LOW- INTEGRATOR OUTPUT TOO LOW.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED.							
CORRECTIVE ACTION-PROGRAMMER-SERVO- CANISTER REPLACED.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AE81-0964/FCA-4CO-02-140	COMPOSITE-FACTORY	140D 610929	FACTORY	YES NO	60/C	899456
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DECK 15-714, CARDS 408, 409, AND 422 (ENGINE POSITION POLARITY) DID NOT MOVE THE ENGINES IN THE YAW PLANE.							
SYSTEM EFFECT-OPERATION DOES NOT START.- AUTOPILOT FAILED TO MOVE ENGINES IN YAW PLANE.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED- COMPOSITE RESCHEDULED.							
CORRECTIVE ACTION-SERVO CANISTER REPLACED.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AE81-0964/FCA-4CO-01-140	COMPOSITE-FACTORY	140D 610921	FACTORY	NO NO	60/C	899460
FAILURE MODE-OUT OF TOLERANCE. THE FREQUENCY RESPONSE WAS LOW. THE TRANSFER FUNCTION ANALYZER HAD FAILED TO RESET.							
SYSTEM EFFECT-FREQUENCY RESPONSE INDICATED TOO LOW CAUSED BY FAILURE OF TEST EQUIPMENT TO RESET.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED- COMPOSITE RE-RAN AT REQUEST OF AIR FORCE EC.							
CORRECTIVE ACTION-NOT KNOWN.							

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AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AE81-0380/PC-4CO-01-183 AMPLIFIER	COMPOSITE-FACTORY	1830	FACTORY	NO	60/C	898212
<p>FAILURE MODE-OUT OF TOLERANCE-VERNIER ROLL TORQUING RATES WERE 45 PCT BELOW NORMAL DURING THE LOW EXCITATION PHASE DUE TO A FAULTY ROLL TORQUE AMPLIFIER AND MONITORING VTVM IN THE AGE.</p> <p>SYSTEM EFFECT-OPERATION TOO LOW.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. A PARTIAL COMPOSITE RETEST WAS REQUIRED.</p> <p>CORRECTIVE ACTION-THE ROLL TORQUE AMP. AND VTVM IN THE AGE WERE REPLACED.</p>							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	GR-04-182 SERVO-AMPLIFIER	FAR 7-41011-977	930	WTR	YES	NO	894777
<p>FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING AN AMPHIE DECK 13 RUN THE ENGINES WOULD NOT GIMBAL WITH AN APPROPRIATE COMMAND IMPRESSED. FAILURE BELIEVED TO BE DUE TO NO OUTPUT FROM THE SERVO-AMPLIFIER SECTION.</p> <p>CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.</p>							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	9F-04-189	FAR 7-41011-977	730	WTR	YES	NO	894369
<p>FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING AUTOPILOT LOOP TESTS VERNIER ENGINE 1 AND 2 PITCH SIGNALS FAILED TO ORIGINATE AT THE PRESCRIBED TIME. BELIEVED TO HAVE BEEN CAUSED BY OTHER SOURCES THAN THE AUTOPILOT SYSTEM.</p> <p>CORRECTIVE ACTION-NONE. CAUSE OF FAILURE COULD NOT BE DETERMINED.</p>							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AE81-0033/PC-4CO-01-100	COMPOSITE-FACTORY	1000	FACTORY	NO	60/C	899433
<p>FAILURE MODE-DRIFT- SUSTAINER PITCH DEFLECTED A POSITIVE 4 VOLTS AT 234 SECONDS. 3.32 VOLTS IS EXPECTED. A VARIING PITCH TEST SIGNAL AMPLITUDE WAS FOUND IN THE GROUND TEST EQUIPMENT.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION- VARIING TEST SIGNAL WOULD INDUCE VARIING PITCH PROGRAM.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED- POST COMPOSITE TESTS WERE REQUIRED TO FIND SOURCE OF PROBLEM.</p> <p>CORRECTIVE ACTION-FLIGHT CONTROL TEST EQUIPMENT WAS IR/D.</p>							

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SYSTEM SUB-SYSTEM	TEST-REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	84-04-186	FAR 7-41011-895	930 910187	WTR	NO NO		090424
FAILURE MODE-OUT OF TOLERANCE. DURING AN APACHE CHECK THE SERVO AMPLIFIER INTRODUCED NOISE INTO THE 28 VDC BURS. BELIEVED DUE TO A MINOR TEST EQUIPMENT FAILURE.							
CORRECTIVE ACTION-NONE. TEST EQUIPMENT PROBLEM INSIGNIFICANT. FAILURE NOT CONFIRMED.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AES1-0011/PC-SC0-01-024	COMPOSITE-FACTORY	24E 910181		NO NO		090425
FAILURE MODE-OUT OF TOLERANCE. PITCH SERVO BIAS VOLTAGES WERE ABOVE NOMINAL-TROUBLE TRACED TO TEST EQUIPMENT. SYSTEM EFFECT-IMPROPER ANALOG SIGNAL-VOLTAGES ABOVE NORMAL. VEHICLE EFFECT-COMPOSITE RESCHEDULED-RETURN OF COMPOSITE REQUIRED.							
CORRECTIVE ACTION-PITCH BACKOUT AMPLIFIER WAS REPLACED.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AES0-1009/PC-AC0-01-102 AMPLIFIER	COMPOSITE-FACTORY	101D 901207		NO NO		090430
FAILURE MODE-OUT OF TOLERANCE-DURING COMPOSITE TEST INCOMPLETE MALLING OF THE PITCH INTEGRATOR WAS NOTE. TRACED TO AGE. SYSTEM EFFECT-OPERATION TOO HIGH-WALL POSITION OF ENGINES TOO FAR FROM ZERO. VEHICLE EFFECT-COMPOSITE DELAYED. GROUND EQUIPMENT REPAIRED AND RETEST OF FLIGHT CONTROL SYSTEM MADE.							
CORRECTIVE ACTION-MALLING AMPLIFIER FOR PITCH INTEGRATOR REPLACED.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	84-04-131 AMPLIFIER	FAR 7-41011-977	90102D	OFFUTT	YES NO		090129
FAILURE MODE-MOIST (ELECT.). APACHE TAPE INDICATED 28 VDC SHORT AND NO OUTPUT FROM ONE SERVO AMPLIFIER SECTION. FAILURE NOT CONFIRMED.							
CORRECTIVE ACTION-UNKNOWN. CAUSE OF FAILURE COULD NOT BE DETERMINED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	AE80-04-043 WIRING	FLIGHT	230 800422	B-2 138.2	YES NO	600422
<p>FAILURE MODE-FAIL DURING OPERATION. LOSS OF V2 YAW PROPORTIONAL CONTROL THROUGHOUT STAGING SEQUENCE. ATTRIBUTED TO LOSS OF FEEDBACK SIGNAL POSSIBLY CAUSED BY FAILURE OF A HYDRAULIC ACCUMULATOR CHARGE LINE ROUTED IN PROXIMITY TO THE FEEDBACK WIRE. OTHER POSSIBILITIES INCLUDED AN INDEPENDENT SIGNAL WIRE FAILURE, A FEEDBACK TRANSDUCER FAILURE, A FAILURE WITHIN THE SERVO CANISTER OR VERNIER YAW FLEXIBLE CABLE.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION. THE V2 ENGINE RESPONDED TO COMMAND SIGNALS ALTHOUGH THE AMPLITUDE OF MOVEMENT WAS NOT PROPORTIONAL TO THE SIGNAL. THE ENGINE REMAINED ON THE ZERO-DEGREE STOP OR 30-DEGREE STOP AS A FUNCTION OF CYRO SIGNAL POLARITY, MOVING FROM EACH STOP AS THE CYRO SIGNAL PASSED THROUGH NULL.</p> <p>VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. TEMPORARY LOSS OF VEHICLE STABILITY RESULTED DURING STAGING. THE EXACT DURATION OF THE MALFUNCTION COULD NOT BE DETERMINED SINCE THE V2 ENGINE IS NORMALLY AT THE 30-DEGREE STOP DURING SUSTAINED PHASE.</p> <p>CORRECTIVE ACTION-VEHICLES 33D AND ON WILL BE EQUIPPED WITH FLEXIBLE STAINLESS STEEL CONDUITS FOR THE VERNIER YAW CABLE.</p>						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	AE80-0198/FC-4CO-02-59 YAW SERVO AMPLIFIER	COMPOSITE-FACTORY	39D 800222	FACTORY	YES NO	800222
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. BOOSTER NO. 2 ENGINE FAILED TO RESPOND TO YAW SIGNALS. THE SERVO-AMPLIFIER CANISTER WAS REMOVED AND THE YAW SERVO-AMPLIFIER REPLACED.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. BOOSTER NO. 2 FAILED TO RESPOND IN YAW PLANE. DEFECTIVE SERVO-AMPLIFIER FOUND.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED-ADDITIONAL TEST REQUIRED TO DETERMINE PROPER OPERATION.</p> <p>CORRECTIVE ACTION-SERVO-AMPLIFIER REPLACED.</p>						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	98-04-043 AMPLIFIER	FAR	24D 800128	FACTORY	YES NO	800128
<p>FAILURE MODE-FAIL TO OPERATE. DURING AUTO PILOT CHECKOUT A COMMAND INPUT OF 1.5VHRS GAVE AN INDICATION OF MALFUNCTION AT THE MONITORED FEEDBACK LEAD. THE B1 YAW SERVO AMPLIFIER WAS OPEN CIRCUITED. POSSIBLY DUE TO AN INADVERTENT APPLICATION OF EXCESSIVE VOLTAGE ACROSS P227 RESISTOR DURING 257 HOURS OF TESTING.</p> <p>CORRECTIVE ACTION-NONE-NO CAUSE COULD BE DETERMINED.</p>						

SECRET

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SYSTEM	TEST/REPORT NUMBER	DIP DATA SOURCE	VEHICLE DATE	SITE TIME	PRI OTH	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE	TIME	DIP OTH	VENDOR PART NO
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	98-04-043 SWITCHES	FAR 7-41011-977	430 900104	ETR	YES NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- SUB ROUTINE TWO EVENTS DID NOT OCCUR AT SCHEDULED TIME DURING TEST . SWITCHES WERE DAMAGED AND INOPERATIVE.						
CORRECTIVE ACTION-PRECAUTIONS WERE TAKEN TO AVOID APPLYING OVER VOLTAGES DURING TEST AS THIS WAS THE SUSPECTED CAUSE OF DAMAGE.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	98-04-031 AMPLIFIER	FAR 7-41011-977	220 591217	ETR	YES NO	
FAILURE MODE-FAIL DURING OPERATION-DURING PITCH INTEGRATOR-SERVO GIMBALLING TEST THE PITCH INTEGRATOR OUTPUT FAILED WHEN A STEP INPUT FUNCTION WAS INPUT. TRANSISTORS RESISTORS, AND CAPACITORS WERE DESTROYED.						
CORRECTIVE ACTION-CLOSE SURVEILLANCE OF SUB-ASSEMBLY PERFORMANCE MAINTAINED-NO SPECIFIC CAUSE COULD BE DETERMINED.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	98-04-030 RESISTOR NETWORK	FAR 7-41011-977	260 591212	ETR	YES NO	
FAILURE MODE-ERRATIC OPERATION-THE V-1 ENGINE RESPONDED ERRATICALLY DURING SYSTEM FREQUENCY RESPONSE TESTS DUE TO INTERMITTENT OPERATION OF THE SERVO BURNING NETWORK. POTTED RESISTOR NETWORK SHORTED.						
CORRECTIVE ACTION-60/C MANUFACTURING PROCESSES FOR POTTED CIRCUITS IMPROVED. INSPECTION TECHNIQUES IMPROVED.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	PTAR28/P8-4CO-01-22	COMPOSITE-B FACT	220 590925	ETR	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. NO SIGNAL RECEIVED FROM PITCH INTEGRATOR DURING INTEGRATOR GIMBALLING TEST. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. ENGINES DID NOT INDICATE PROPER PITCH CHANNEL INTEGRATOR OPERATION. VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-REPLACED FLIGHT CONTROL PACKAGE AFTER TEST.						

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AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	PT4083/P4-408-00-10 RELAY	PRF	100 590903	14/ETR	NO	NO
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. GYRO TORQUING TEST DATA DURING THE COUNTDOWN INDICATED FAULTY PITC M AND YAW INTEGRATORS. INVESTIGATION REVEALED THAT A RELAY IN THE TEST EQUIPMENT WAS NOT FUNCTIONING PROPERLY.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. DATA OBTAINED DURING GYRO TORQUING TEST WAS NOT AS EXPECTED.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-INVESTIGATED AND DISCOVERED A RELAY IN THE TEST EQUIPMENT WAS NOT FUNCTIONING PROPERLY. RESULTS OF GYRO TORQUING TEST WERE CONSIDERED ACCEPTABLE ON THIS BASIS.</p>						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AZN-27-313/FC-400-04-26 NO.1 YAW FEEDBACK TRANSDUCER	COMPOSITE-FACTORY	280 590821	FACTORY	YES NO	NO
<p>FAILURE MODE-ERRATIC OPERATION. A 3.0 VOLT SPIKE ON THE RANDOM RECORDING WAS FOUND TO BE CAUSED BY AN INTERMITTENT GROUND CONNECTION ON THE CENTER-TAP OF VERNIER NO.1 YAW FEEDBACK TRANSDUCER DURING THE COMPOSITE TEST.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED RE-RUN OF COMPOSITE REQUIRED.</p> <p>CORRECTIVE ACTION-NOT KNOWN.</p>						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	AZN-27-178/FC-400-08-03 FILTER	COMPOSITE-FACTORY	30 590212	YES 60/C	NO	NO
<p>FAILURE MODE-OUT OF TOLERANCE. LOW GAIN OF THE VERNIER NO. 1 ENGINE SERVO LOOP IN THE ROLL AXIS WAS INDICATED. THIS WAS CAUSED BY A DEFECTIVE ROLL STABILIZATION FILTER.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. FAULTY FILTER CAUSED THE VERNIER ROLL SERVO LOOP GAIN TO BE TOO LOW.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING WAS CONDUCTED TO SOLVE PROBLEM. FURTHER SYSTEM AND COMPOSITE TESTING WAS DEFERRED TO THE SITE.</p> <p>CORRECTIVE ACTION-THE A/P GYRO WAS REMOVED. COMPONENT LEVEL TESTING WAS CONDUCTED.</p>						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	98-04-004 ELECTRICAL CONNECTOR	FAR	108 590131	ETR	YES NO	NO
<p>FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME- SERVO AMPLIFIER DID NOT DELIVER ANALOG SIGNAL TO B1 SERVO VALVE. SERVO AMPLIFIER PACKAGE REPLACED. SYSTEM CHECKED CORRECTLY. SUSPECT HIGH CONTACT RESISTANCE BETWEEN PINS D OR F OF HARNESS PLUG J201 AND CAMBISTER RECEPTACLE J201.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP OTH	PRI DIP OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE-FAILURE COULD NOT BE CONFIRMED IN SERVO AMPLIFIER PACKAGE.						
AUTOPLOTT-ROUND-A/B FILTER AND SERVOAMP	2C-7-219/P2-303-00-04	FLIGHT	AC 390127	ETR 129	YES 60/C NO	893954 893878
FAILURE MODE-ERRATIC OPERATION-AT 129 SECONDS A 0.2 SECOND TRANSIENT OF 0.18 DEGREES IN NEGATIVE BOOSTER PITCH AND 0.2 DEGREES OF COUNTERCLOCKWISE VERNIER ROLL WAS NOTED IN THE ENGINE POSITION DATA AND WAS PROBABLY CAUSED BY A MOMENTARY ERROR IN THE PITCH INTEGRATOR.						
SYSTEM EFFECT-ERRATIC OPERATION-A 0.2 SECOND TRANSIENT IN BOOSTER PITCH AND VERNIER ROLL.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPLOTT-ROUND-A/B FILTER AND SERVOAMP	2C-7-208 SYNCRANISTER	FLIGHT	108 501218	11 3.	YES NO	892133
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. NO TELEMETRY WAS ABOARD MISSILE TO VERIFY FAILURE MODE. IT WAS DETERMINED THAT MISALIGNMENT OF THE SYNO CANISTER WAS MOST PROBABLE CAUSE OF 11 DEGREE AZIMUTH ERROR. AS A CONSEQUENCE, THE MISSILE WAS ROLLED PROPERLY BUT PITCHED OVER ABOUT A WRONG AXIS.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. VEHICLE WAS COMMANDING TO PITCH IN IMPROPER DIRECTION.						
VEHICLE EFFECT-IMPROPER TRAJECTORY. CORRECTED BY GUIDANCE STEERING COMMANDS AT 138 SECONDS.						
CORRECTIVE ACTION-CANISTER ALIGNMENT PROCEDURES WERE REVISED AND DESIGN MODIFICATIONS ACCOMPLISHED EFFECTIVE ON MISSILE 13 C AND ON.						
AUTOPLOTT-ROUND-A/B FILTER AND SERVOAMP	PIA4413/P1-ED1-00-1D	FRP	108 501209	11/ETR -420	YES NO	893914
FAILURE MODE-FAIL DURING OPERATION. CONTROL OF BOOSTER 1 IN YAW WAS LOST.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 103 MINUTES HOLD AND 85 MINUTE RECYCLE.						
CORRECTIVE ACTION-REPLACE SERVO CANISTER.						
AUTOPLOTT-ROUND-A/B FILTER AND SERVOAMP	2C-7-207/P1-208-00-8	FLIGHT	98 501117	ETR 3	YES NO	
FAILURE MODE-OUT OF TOLERANCE. ABNORMALLY HIGH-AMPLITUDE 50-CPS CLIMBED LOOP ROLL OSCILLATION. ROLL OSCILLATIONS AT 98 CPS HAD APPEARED TO SOME DEGREE ON OTHER SERIES 8 FLIGHTS, INDICATING A MARGINALLY HIGH ROLL GAIN AT THIS FREQUENCY.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CT.						
	SYSTEM EFFECT-ERRATIC OPERATION. OSCILLATIONS RESULTED IN MARGINAL ROLL STABILITY, LARGE BOOSTER AND VERNIER ENGINE CONTROL MOTIONS, AND EXCESSIVE HYDRAULIC DEMANDS.					
	VEHICLE EFFECT-NONE. ROLL CONTROL WAS MARGINAL DURING THE FIRST 44 SECONDS OF FLIGHT.					
	CORRECTIVE ACTION-A 4CPS FIRST ORDER LAG FILTER WAS INSTALLED IN BOTH PLUS AND MINUS ROLL CHANNELS ON SUBSEQUENT FLIGHT VEHICLES.					
	AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	FTA3323/PI-204-50-00	COUNTDOWN 98 561115	11 -540	YES NO	
	FAILURE MODE-FAIL DURING OPERATION.					
	SYSTEM EFFECT-OPERATION STOPS PREMATURELY. FLIGHT CONTROL LOST BOOSTER ENGINE CONTROL.					
	VEHICLE EFFECT-COUNTDOWN ABORTED. 8 MINUTES HOLD.					
	CORRECTIVE ACTION-UNKNOWN.					
	AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	ZC-T-208/PS-204-00-4	FLIGHT 48 580802	ETR 140	YES NO	
	FAILURE MODE-OUT OF EXPECTED TEST VALUE. AFTER STAGING THE SUSTAINER ENGINE DISPLAYED EXCESSIVE OSCILLATIONS APPARENTLY CAUSED BY SYSTEM END TO END GAINING SET AT TOO HIGH A LEVEL FOR THE MISSILE BENDING MODES EXPERIENCED.					
	SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-SIGNALS SENT TO THE PITCH CONTROLLER WERE AT TOO HIGH A LEVEL CAUSING EXCESSIVE RESPONSE TO THE MISSILE BENDING MODES EXPERIENCED.					
	VEHICLE EFFECT-NONE. NO DETRIMENTAL EFFECTS WERE OBSERVED. THE OSCILLATIONS DECREASED AS THE FLIGHT PROGRESSED AND BENDING MODES DISAPPEARED.					
	CORRECTIVE ACTION-FLIGHT CONTROL SYSTEM GAINS WERE CHANGED TO PRECLUDE EXCESSIVE RESPONSE TO BENDING MODES ON LATER VEHICLES. THE RATE GYROS WERE MOVED FORWARD ON THE AIRFRAME TO IMPROVE THEIR SENSITIVITY TO VEHICLE BENDING MODES.					
	AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	FTA 0088/PS-201-DC-4	PRF 48 580716	ETR -540G	YES NO	
	FAILURE MODE-ERRATIC OPERATION. BI PITCH ENGINE MOVEMENT INDICATED NONLINEARITY ABOUT THE ENGINE ZERO POSITION FROM PLUS 0.38 DEGREES TO MINUS 0.38 DEGREES. FIRST CHECK WAS PERFORMED AT 2000 PSI HYDRAULICS. ANOTHER CHECK AT 3000 PSI INDICATED NON LINEARITY WAS NOTICEABLY LESS.					
	SYSTEM EFFECT-ERRATIC OPERATION. BI PITCH ENGINE MOVEMENT WAS ERRATIC.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. 20 MINUTE HOLD.					

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	FTA4081/P5-ECO-01-04	COMPOSITE-B FACT	4B 580709	ETR	NO	NO
FAILURE MODE-OUT OF TOLERANCE. SUSTAINER ENGINE MOVEMENT HAD 8CPS OSCILLATION WITH HIGH OVERSHOOTS IN BOTH PITCH AND YAW SERVO LOOPS WITH APPLICATION OF A STEP VOLTAGE TO EITHER SERVO LOOP.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-NONE. TESTS SHOWED PROBLEM WAS DUE TO SLACK IN GIMBAL BLOCK UNDER NO-THRUST CONDITIONS AND SLACK WOULD NOT EXIST WITH THRUST APPLIED.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	FTA3070/P1-ECO-01-03	COMPOSITE-B FACT	3B 580613	ETR	NO	NO
FAILURE MODE-OUT OF EXPECTED TEST VALUE. SUSTAINER ENGINE MOVEMENT HAD 6 CPS OSCILLATIONS WITH HIGH OVERSHOOTS IN YAW SERVO LOOP WITH APPLICATION OF A STEP VOLTAGE TO THE YAW SERVO LOOP. THIS PROBLEM OCCURRED ON MISSILE 4B AND WAS FOUND TO BE THE RESULT OF SLACK IN THE GIMBAL BLOCK UNDER NO THRUST CONDITIONS.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. 6 CPS OSCILLATIONS IN THE SUSTAINER YAW SERVO LOOP.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	FTA2838/P2-101-00-18 SERVO AMPLIFIER	PRF	16A 580418	12/ETR -0000	YES	NO
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE YAW INTEGRATOR FAILED TO RESPOND TO AN INPUT VOLTAGE DURING CO UNDOOWN CHECKS.						
SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-REPLACED THE SERVO CANISTER.						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	FTA2710/P4-103-00-18	PRF	15A 580322	ETR -11.400	NO	NO
FAILURE MODE-OUT OF SPECIFICATION. THE YAW INTEGRATOR GAIN WAS OUT OF SPECIFICATIONS ON THE HIGH SIDE. IT APPEARED THAT A VOLTAGE LOSS BETWEEN THE MISSILE AND THE BLOCKHOUSE INSTRUMENTATION WAS THE REASON FOR THE HIGH INDICATION.						

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							000012
	SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. INSTRUMENTATION INDICATED HIGH YAW INTEGRATOR GAIN SIGNALS. VEHICLE EFFECT-NONE. CORRECTIVE ACTION-UNKNOWN.						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	FTAE741/P4-1CO-01-13	COMPOSITE-B FACT	13A 580310	ETR	YES NO		001031
	FAILURE MODE-FAIL DURING OPERATION. B2 ENGINE RESPONSE TO AN AUTOMATIC PROGRAMMED PITCH INPUT WAS LOGARITHMIC INSTEAD OF A STEP RESPONSE. SYSTEM EFFECT-ERRATIC OPERATION. THE B2 ENGINE WAS NOT RESPONDING PROPERLY TO PITCH INPUT STEPS. CORRECTIVE ACTION-UNKNOWN.						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	FTAE518/P4-1CO-01-13	COMPOSITE-B FACT	13A 580126	ETR	NO NO		001030
	FAILURE MODE-OUT OF TOLERANCE. END TO END GAINS OF BOOSTER 1 AND VERNIER 1 WERE GREATER THAN BOOSTER 2 AND VERNIER 2, AS OBSERVED ON LANDLINE AND TELEMETRY RECORDS. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. VEHICLE EFFECT-NONE. CORRECTIVE ACTION-NONE. SUBSEQUENT TESTS, ELIMINATING MISSILE SYSTEMS CHECKOUT TRAILER, SHOWED END TO END GAINS WERE EQUAL.						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	ZM-7-328/FC-1CO-01-11 SERVOAMPLIFIER	COMPOSITE-FACTORY	11A 371122		YES NO		000013
	FAILURE MODE-ERRATIC OPERATION-BOOSTER FEEDBACK SIGNALS DID NOT CORRESPOND TO THE PROGRAM PROFILE. THE PROBLEM WAS DETERMINED TO BE THE RESULT OF A FAULTY SERVO AMP. SYSTEM EFFECT-ERRATIC OPERATION. VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE FIX TEST WAS PERFORMED. CORRECTIVE ACTION-NO INDICATION OF CORRECTIVE ACTION TAKEN. THERE WAS A RECOMMENDATION THAT THE SERVO CANISTER BE REMOVED OR REPLACED.						

GENERAL DYNAMICS
CONVAIR DIV. BOM

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PAP. NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VEHICLE PART NO
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	24-7-328/FC-1CO-01-11 AMPLIFIER	COMPOSITE-FACTORY	11A 571122		NO N	088412
<p>FAILURE MODE-FAIL DURING OPERATION-PITCH AND YAW GYRO SIGNAL AMPLIFIER OUTPUTS INDICATED FROM 0.6 VOLT TO 1.0 VOLT NOISE AT A FREQUENCY OF 80 CYCLES.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DFLAYED OR RESCHEDULED NUMEROUS SUBSYSTEM TEST WERE PERFORMED.</p> <p>CORRECTIVE ACTION-OUTPUT FROM THE TORQUING AMPS AND CATHODE FOLLOWERS WERE FREE OF NOISE. IT WAS BELIEVED THE NOISE RESULTED FROM 65E INTERFERENCE.</p>						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	24-7-328/FC-1CO-01-11	COMPOSITE-FACTORY	11A 571122	FACTORY	YES NO	088414
<p>FAILURE MODE-FAIL DURING OPERATION. CROSS COUPLING OF 0.2 VOLTS POSITIVE WAS INDICATED ON THE PITCH AND YAW GYRO SIGNAL AMPLIFIER OUTPUTS AT THE END OF ROLL BIAS SIGNAL. THIS CROSS COUPLING IS ONLY PRESENT WHEN ONE OF THE DISPLACEMENT GYROS IS TORQUED TO ITS STOP AT A HIGH RATE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-ANOMALY WAS ACCEPTED AS IS. (REF LETTER DATED 16 AUGUST 1957 FROM E.D. STECHERT TO M.L. NEWMAN.</p>						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	24-7-328/FC-1CO-01-11 AMPLIFIER	COMPOSITE-FACTORY	11A 571122		YES NO	088413
<p>FAILURE MODE-FAIL DURING OPERATION. TRANSIENT IN THE PITCH AND YAW GYRO SIGNAL AMPLIFIER TRACES WERE EVIDENT WHEN INTEGRATORS WERE NULLED AND UNULLED. THIS PROBLEM OCCURS BECAUSE OF A SMALL IMPEDANCE MISMATCH IN THE OUTPUT CIRCUITRY OF THE GYRO SIGNAL AMPLIFIERS.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-SINCE THE INTEGRATORS WILL NOT BE NULLED IN FLIGHT THE IRREGULARITY WAS ACCEPTED AS IS- REF. LETTER FROM L. BOARD TO M.L. NEWMAN.</p>						
AUTOPLOT-ROUND-A/B FILTER AND SERVOAMP	24-7-328/FC-1CO-01-10	COMPOSITE-FACTORY	10A 571114	ETR	YES NO	
<p>FAILURE MODE-FAIL DURING OPERATION. THE ROLL INTEGRATOR DID NOT RESPOND DURING THE TEST.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1969

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. RESPONSE IN ROLL CHANNEL WAS NOT PROPER DUE TO FAILURE OF ROLL INTEGRATOR.							001055
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-REPLACED THE SERVO CANISTER.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	ZN-7-493/FC-1CO-03-14	COMPOSITE-FACTORY	14A 571014	FACTORY	YES NO		000132
FAILURE MODE-FAIL DURING OPERATION-TRANSIENT IN THE PITCH AND YAW GYRO SIGNAL AMPLIFIER TRACES WERE EVIDENT WHEN INTEGRATORS WERE NULLED AND UN-NULLED. THIS PROBLEM OCCURS BECAUSE OF A SMALL IMPEDANCE MISMATCH IN THE OUTPUT CIRCUITRY OF THE GYRO SIGNAL AMPLIFIERS.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-SINCE THE INTEGRATORS WILL NOT BE NULLED IN FLIGHT THE IRREGULARITY WAS ACCEPTED AS IS. REF LETTER 8 FROM L. BOARD TO H.L. NEUMAN.							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	ZN-7-493/FC-1CO-03-14	COMPOSITE-FACTORY	14A 571014	FACTORY	YES NO		000130
FAILURE MODE-FAIL DURING OPERATION-CROSS COUPLING OF 0.2 VOLTS POSITIVE WAS INDICATED ON THE PITCH AND YAW GYRO SIGNAL AMPLIFIER OUTPUTS AT THE END OF ROLL DUE SIGNAL. THIS CROSS COUPLING IS ONLY PRESENT WHEN ONE OF THE DISPLACEMENT GYROS IS TORQUED TO ITS STOP AT A HIGH RATE.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-ANOMALY WAS ACCEPTED AS IS. (REF LETTER DATED 18 AUGUST 1957 FROM E. D. JOCKERT TO H. L. NEUMAN)							
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	EN-69614-113-08-02 SERVOAMPLIFIER	CAPTIVE	2A 572008	1A	YES NO		000321
FAILURE MODE-OUT OF TOLERANCE. THE VERNIER NO. 1 SERVO STATIC GAIN EXCEEDED SPECIFICATION. THE MEASURED GAIN WAS 8.9 DEG/VOLT. WHEN 7.04 PLUS OR MINUS 10 PERCENT WAS EXPECTED. VERNIER NO. 2 GAIN WAS HIGH BUT IN SPECIFICATION.							
SYSTEM EFFECT-OPERATION TOO HIGH.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-UNKNOWN.							

SEMI-DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-MOUNT-A/S FILTER AND SERVOAMP	ZC-7-083-8A/P4-108-00-08 ACPS FILTER	FLIGHT	8A 370823	14	YES YES	60/C	000872
<p>FAILURE MODE-PA. L DURING OPERATION. LACK OF A ACPS FILTER IN THE FLIGHT CONTROL SYSTEM CAUSED COUPLING BETWEEN THE RATE SYRO AND THE THIRD BENDING MODE OF THE MISSILE WHICH RESULTED IN 17.5CPS VIBRATION.</p> <p>SYSTEM EFFECT-OPERATION TOO NOISY.</p> <p>VEHICLE EFFECT-MISSION FAILED. PREMATURE BOOSTER ENGINE SHUTDOWN. AFTER 43.3 SECONDS OF OPERATION A DROP-OFF OF 70 PERCENT IN PROPULSION PERFORMANCE OCCURRED AS A RESULT OF LOSS OF HELIUM TO THE B66 REG. REFERENCE WHICH RESTRICTED THE LOS FLOW TO THE B66. THE VEHICLE WAS SUBSEQUENTLY DESTROYED BY NA-62 SAFETY.</p> <p>CORRECTIVE ACTION-INSERTED A ACPS FILTER BETWEEN THE SYRO AMPLIFIER OUT AND THE INPUT TO THE SERVO AMPLIFIER AND DECREASE THE GAIN SETTING OF THE RATE SYRO TO ELIMINATE THE COUPLING BETWEEN THE RATE SYRO AND THE THIRD BENDING MODE OF THE MISSILE AT 17.5CPS (ZC-7-083).</p>							
AUTOPILOT-MOUNT-A/S FILTER AND SERVOAMP	ZH-7-073/FC-100-08-08	COMPOSITE-FACTORY	8A 370823	FACTORY	YES NO		000134
<p>FAILURE MODE-FAIL DURING OPERATION-AT ROLL INTERGRATORS UNMALLED. TRANSIENTS WERE OBSERVED ON THE OUTPUTS OF THE PI TEN AND TAN SYRO SIGNAL AMP. OUTPUTS.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. RESCHEDULED-NUMEROUS RETESTS WERE PERFORMED IN AN EFFORT TO DETERMINE THE CAUSE.</p> <p>CORRECTIVE ACTION-TORQUEP AMPLIFIER AND CATHODE FOLLOWER OUTPUTS WERE FREE OF TRANSIENTS. THEREFORE, THE PROBLEM IS BELIEVED TO ORIGINATE IN THE AGE. THE MISSILE WAS ACCEPTED WITH THE PROBLEM STILL EVIDENT.</p>							
AUTOPILOT-MOUNT-A/S FILTER AND SERVOAMP	ZH-7-073/FC-100-08-08	COMPOSITE-FACTORY	8A 370823	FACTORY	YES NO		000131
<p>FAILURE MODE-FAIL DURING OPERATION-PITCH AND TAN SYRO SIGNAL AMPLIFIER OUTPUTS INDICATED FROM 0.6 VOLT TO 1.0 VOLT NOISE AT A FREQUENCY OF 50 CYCLES.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. RE-SCHEDULED-NUMEROUS SUBSYSTEM TEST WERE PERFORMED.</p> <p>CORRECTIVE ACTION-OUTPUT FROM THE TORQUEP AMP. AND CATHODE FOLLOWERS WERE FREE OF NOISE. IT WAS BELIEVED THE NOISE RESULTED FROM 60E INTERFERENCE.</p>							

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VEHICOR PART NO
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	2C-7-201/P4-103-00-04 4CPS FILTER	FLIGHT	4A 570811	14	YES YES	60/C YES
<p>FAILURE MODE-FAIL DURING OPERATION. LACK OF A 4 CPS FILTER IN THE FLIGHT CONTROL SYSTEM CAUSED COUPLING BETWEEN THE RATE SYRO AND THE THIRD BENDING MODE OF THE MISSILE WHICH RESULTED IN 17.5 CPS VIBRATION.</p> <p>SYSTEM EFFECT-OPERATION TOO HIGH.</p> <p>VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. VEHICLE WAS DESTROYED BY RANGE SAFETY AS A RESULT OF THE REDUCED BE THRUS T.</p> <p>CORRECTIVE ACTION-INSURE A 4 CPS FILTER BETWEEN THE SYRO AMPLIFIER OUTPUT AND THE INPUT TO THE SERVO AMPLIFIER AND DECREASE THE RATE SYRO GAIN SETTING TO ELIMINATE THE COUPLING BETWEEN THE RATE SYRO AND THE BENDING MODE OF THE MISS ILE OF 17.5 CPS.</p>						
AUTOPILOT-ROUND-A/B FILTER AND SERVOAMP	EN-347/103-1	CAPTIVE	3A 570210	SYC 8-1 0.5	NO NO	60/C YES
<p>FAILURE MODE-FAIL DURING OPERATION. AN EXCESSIVE DEVIATION OF 0.9 DEGREES FROM NULL WAS OBSERVED ON B1 IN THE PITCH PLANE. THIS COINCIDED WITH AN EXCESSIVE PRESSURE SURGE IN THE THRUST CHAMBER.</p> <p>SYSTEM EFFECT-OPERATION TOO HIGH. THE MAXIMUM DEVIATION WAS MUCH HIGHER THAN THAT SEEN IN OTHER PLANES. RECOVERY WAS NORMAL. NO FURTHER PROBLEMS WERE NOTED AFTER THIS TRANSITORY POSITION.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPILOT-SQUARE-A/B	27C4847 CHOKE/TRANSFORMER TYPE	UTP-PET 27-04180-1	681001	60/C	YES NO	DECO NO 10321
<p>FAILURE MODE-STRUCTURAL-DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK THE TEST SPECIMEN HAD A MAINLINE CRACK IN THE CASE EXTENDING FROM ONE SIDE TO ONE END OF THE SPECIMEN. CAUSED BY GLASS WRAP ONLY PARTIAL COVERING TRANSFORMER.</p> <p>CORRECTIVE ACTION-CAR NO. 6034 WAS SENT TO DECO BY 60/C QUALITY ASSURANCE REQUESTING PROPER CORRECTIVE ACTION. REPL Y EXPECTED BY 18 FEB. 64. NEW PET LOT IF SUBMITTED MUST HAVE PET RETURN. THIS LOT THAT FAILED IS BEING REJECTED TO VE HODON (IRD). REF. STCCH NO. 551-4-039</p>						
AUTOPILOT-SQUARE-A/B	27C4840.1 TRANSFORMER	UTP-PET 27-04398-1	681002	60/C	YES NO	TRANSONIC NO 18-3021
<p>FAILURE MODE-STRUCTURAL-DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK THE TEST SPECIMEN HAD A ONE HALF INCH CRAC K IN THE CASE ON ONE SIDE NEAR ITS EDGE-THIS WAS CAUSED BY THE OMISSION OF GLASS WRAPPING DURING THE CONSTRUCTION OF THE TRANSFORMERS.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SIZE TIME DIS	PRI OTH	VENDOR NAME VENDOR PART NO
890261						
AUTOPILOT-SQUARE-A/B	89C4819-1 TRANSFORMER	UTP-PET 27-04128-1	951119	60/C	YES NO	60/C-P/M
890262						
FAILURE MODE-OUT OF TOLERANCE-DURING INTERNAL VISUAL INSPECTION ALL SEVEN SPECIMENS MEASURED 0.30 INCHES FOR DIMENS ION 0 WHERE 0.030(TYP) IS SPECIFIED. VOIDS IN POTTING WERE FOUND IN TWO SPECIMENS WHITE EXTENSIVELY OVER THE CASE S URFACE. THIS WAS CAUSED BY THE GLASS WRAP TRAPPING AIR BETWEEN COILS WHEN PORES WERE SEALED BY RESIN						
CORRECTIVE ACTION-NOTE WAS ADDED TO 60/C GENERAL CONSTRUCTION SPECIFICATION REQUIRING A SLIT OR HOLE BE MADE IN GLA SS WRAP BETWEEN COILS OF MALT/ BOBBIN TRANSFORMERS. TEST COILS INCORPORATING THIS CAN HAVE BEEN SECTIONED AND WERE V OID FREE. REF. CTCM NO. 551-4-037						
890263						
AUTOPILOT-SQUARE-A/B	89C4088-1 TRANSFORMER	UTP-PET 27-04161-1	951102	60/C	YES NO	DECO 10318
FAILURE MODE-STRUCTURAL-DURING INSERT STRENGTH TEST, BOTH INSERTS ON TWO SPECIMENS BEGAN TO PULL OUT OF THE POTTING OF THE TEST SPECIMEN AT A TORQUE OF 4.0 LB-INCHES MINIMUM REQUIREMENT IS 4.7 LB-INCHES. THIS WAS CAUSED BY INSERTS BEING WEAKENED BY ELECTROLYSIS DURING MOISTURE RESISTANCE TEST.						
CORRECTIVE ACTION-MOISTURE RESISTANCE TEST SETUP WAS REVISED 29 OCTOBER 1965 TO COMPLY WITH INTENT OF MIL-T-27 SPEC IFICATION. TESTING CONTINUED. REF. CTCM NO. 551-4-038						
891987						
AUTOPILOT-SQUARE-A/B	89C-4551-1 TRANSFORMER	UTP-QUAL/PST 27-04178-1	951007	60/C	YES NO	DECO 7336
FAILURE MODE-STRUCTURAL, DURING PARA. 4-12 INSERT STRENGTH TEST, ALL FOUR INSERTS ON THE BOTTOM SIDE OF TEST SPECIM EN STARTED TO PULL OUT AT 14 POUND-INCHES. THE REQUIRED WITHHOLDING TORQUE FOR INSERTS IS 17.6 POUND-INCHES. THIS WA S CAUSED BY VENDOR USING STAINLESS STEEL INSERTS INSTEAD OF BRASS INSERTS.						
CORRECTIVE ACTION-A 100 PERCENT CHECK ON REMAINING LOT AND O.P.I WAS REQUESTED BY 60/C QUALITY ASSURANCE GROUP DEPT 141-3 TO AUDIT DECO AND INSURE COMPLIANCE THAT DECO USES BRASS INSERTS VIA CAR AGREEMENT OF 24 MAY 1965. REF. CTCM NO. 551-4-038.						
AUTOPILOT-SQUARE-A/B	89C4083-1 TRANSFORMER	UTP-QUAL/PST 27-04182-1	950983	60/C	YES NO	DECO 10319
FAILURE MODE-OPEN (ELECT). PRIOR TO THE POST-OVERLOAD ELECTRICAL TEST, PARA. 4-14, THE WINDING CONTINUITY OF THE TE ST SPECIMENS WAS CHECKED AND THE SECONDARY WINDINGS BETWEEN TERMINALS 3 AND 4 WERE FOUND TO BE OPEN ON TWO OF THE 31 TEST SPECIMENS. THIS WAS CAUSED BY POOR INTERCONNECTION OF THE COIL WIRE. DEMOTTING SHOWED THE NO. 40 COIL WIRE BA DLY KINKED AND STRETCHED.						

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CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPLOTT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI CYM	VENOM NAME VENOM PART NO	
							001478
	CORRECTIVE ACTION-OECO IS TO FURNISH THE FOLLOWING CORRECTIVE ACTIONS. (1) REVISED METHOD OF STRIPPING WIRE. (2) MEASURES TO PREVENT THE WIRE FROM BEING STRESSED AND (3) MEASURES TO PREVENT KINKING OF THE WIRE IN THE VICINITY OF THE CONNECTION. 60/4 FURTHER RECOMMENDS THAT THE CONNECTION BE TAPED TO THE COIL AND THAT NO. 40 WIRE AND SMALLER SHOULD NOT BE ROUTED ACROSS A BOBBIN FLANGE. REF. CTCHT NO. 551-4-030.						
AUTOPLOTT-SQUARE-A/B	FR59C4086-1 TRANSFORMER	UTP-QUAL/PPT 27-04181-1	650907	60/C	NO	OECO NO 10318	002299
	FAILURE MODE-OUT OF SPECIFICATION. DURING MOISTURE RESISTANCE TEST, PARA. 4.12, WHILE VISUALLY INSPECTING UNITS, SIX TEST SPECIMENS HAD AT LEAST ONE PIN UP EACH TEST SPECIMEN SEVERELY ERRODED FOLLOWING NINTH CYCLE OF THE MOISTURE RESISTANCE TEST. THIS WAS CAUSED BY THE MOISTURE RESISTANCE TEST SETUP, PERMITTING ELECTROLYSIS BETWEEN TERMINALS AND ALUMINUM MOUNTING BUSH AND WAS ABETTED BY IMPURITIES IN THE WATER.						
	CORRECTIVE ACTION- TEST PROCEDURE WAS REVISED TO PREVENT ELECTROLYSIS INITIATED BY CORROSION OF TEST FIXTURE AND/OR IMPURITIES IN THE WATER BY. (1). CLEANING SURFACES PRIOR TO START OF TEST. (2). PREVENTION OF ADVENTITIOUS MATERIAL. (3). INSULATION OF CONDUCTOR TO SIMULATE USE CONDITION. REF. CTCHT NO. 551-4-029.						
AUTOPLOTT-SQUARE-A/B	FR59C4087-1 TRANSFORMER	UTP-QUAL/PPT 27-04180-1	650907	60/C	NO	OECO NO 10321	001704
	FAILURE MODE- OUT OF SPECIFICATION. DURING VISUAL INSPECTION OF MOISTURE RESISTANCE TEST, PARA. 4.13, ALL SIX SPECIMENS HAD ALL THEIR PINS SEVERELY ERRODED FOLLOWING THE MOISTURE RESISTANCE TEST. THIS WAS CAUSED BY THE MOISTURE RESISTANCE TEST SETUP, PERMITTING ELECTROLYSIS BETWEEN TERMINALS AND ALUMINUM MOUNTING BUSH AND WAS ABETTED BY IMPURITIES IN THE WATER.						
	CORRECTIVE ACTION- TEST PROCEDURE WAS REVISED TO PREVENT ELECTROLYSIS INITIATED BY CORROSION OF TEST FIXTURE AND/OR IMPURITIES IN WATER BY. (1). CLEANING SURFACES PRIOR TO START OF TEST. (2). PREVENTION OF ADVENTITIOUS MATERIAL. (3). INSULATION OF CONDUCTOR TO SIMULATE USE CONDITION. REF. 551-4-029.						
AUTOPLOTT-SQUARE-A/B	FR59C4252-1 TRANSFORMER	UTP-QUAL/PPT 7-04347	650826	60/C	YES	60/C NO	001477
	FAILURE MODE- OUT OF SPECIFICATION. DURING IMMERSION TEST, PARA. 4.11, ALL SIX SPECIMENS ABSORBED WATER. THIS CONDITION WAS INDICATED BY AN OUT OF SPECIFICATION COIL TO CASE DC RESISTANCE WHICH RANGED FROM 400 OHMS TO 1 MEGOHM FOR AT LEAST ONE COIL AND CASE OF EACH OF THE SIX SPECIMENS. THIS WAS CAUSED BY POOR SOLDERING OF THE METAL CASE, THE CASE NOT BEING SOLDER PLATED, AND THE SOLDERING IRON NOT ADEQUATE FOR THE JOB.						
	CORRECTIVE ACTION-THE CASES AND L108 ARE TO BE SOLDERED PLATED AND AN IRON OF 100 WATT MINIMUM IS TO BE USED. THE ABOVE REQUIREMENTS HAVE BEEN ADDED TO MANUFACTURING DRAWING 24-9-65. PPT IS TO BE REBORN WITH THE NEW SPECIMENS. REF. CTCHT NO. 551-4-029.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/2	89C4232-1 TRANSFORMER	UTP-RUAL/PPT 27-04394-1	830827	60/C	YES NO	60/C 27-04394-1
<p>FAILURE MODE-STRUCTURAL. ALL SIX TEST SPECIMENS HAD CRACKS LOCATED ON SIDES AND CORNERS WHICH OCCURRED DURING PARA. 4-12 THERMAL SHOCK TEST. THIS WAS CAUSED BY TERMINAL STRIPS BEING MISALIGNED. ENCAPSULATION MATERIAL THICKNESS WAS REDUCED BELOW MARGINAL REQUIREMENTS.</p> <p>CORRECTIVE ACTION-AN ALIGNING JIG HAS BEEN BUILT WHICH WILL PREVENT BOTH THE TERMINAL STRIPS AND THE TRANSFORMER FR OM SLIPPING OUT OF ALIGNMENT WHILE THE ADHESIVE CURES. USE OF JIGS WILL BE REQUIRED BY GENERAL CONSTRUCTION SPEC. RE P. CTCM NO. 551-4-026.</p>						
AUTOPLOT-SQUARE-A/7	89C4242-1 TRANSFORMER	UTP-RUAL/PPT 27-04173-1	830827	60/C	YES NO	60/C 27-04173-1
<p>FAILURE MODE-ELECTRICAL OPEN. DURING PARA 4-10 FOLLOWING THERMAL SHOCK, TWO SPECIMENS HAD PRIMARY WINDINGS OPEN. TH IS WAS CAUSED BY EXCESSIVE TENSION ON NO. 46 WIRE DURING WINDING.</p> <p>CORRECTIVE ACTION-1) TENSION ON NO. 46 WIRE REDUCED TO 0.03 POUNDS AND MEASURED USING A GRAPES GAUGE. 2) WINDING S PED REDUCED FROM MACHINE SETTING OF 70 TO 55 MAX. 3) JIG MADE AND INSTALLED ON MACHINE TO MAKE INTERCONNECTIONS EAS IER. 4) BOTTOM INSPECTED UNDER 25 POWER MICROSCOPE TO INSURE COMPLETE DEBURRING. 5) NO. 46 WIRE NOT STRIPPED FOR INT ERCONNECTION. 6) INTERLAYER WRAPPED TAPE REVERSED TO PREVENT BONDING TO NO. 46 WIRE. REF CTCM NO. 551-4-027.</p>						
AUTOPLOT-SQUARE-A/8	89C4239-1 TRANSFORMER	UTP-RUAL/PPT 55-01133-1	830817	60/C	YES NO	60/C 55-01133-1
<p>FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION PARA. 4-1, DIMENSIONAL OUT OF TOLERANCES FOR DATA SHEET REF ERENCE E FOR THREE SPECIMENS MEASURED AT 0.295, 0.180, AND 0.198 INCHES, WHERE THE REQUIRED LIMIT IS 0.30. THIS WAS CAUSED BY PROBLEMS INHERENT IN VACUUM IMPREGNATION AND POTTING PROCESS.</p> <p>CORRECTIVE ACTION-GENERAL CONSTRUCTION SPEC REVISED 31 AUGUST 1965 TO ADD REQUIREMENT TO MEET INSERT DIMENSIONS. RE P. CTCM NO. 551-4-023.</p>						
AUTOPLOT-SQUARE-A/9	89C4232-1 TRANSFORMER	UTP-RUAL/PPT 7-04347	830817	60/C	YES NO	60/C NO
<p>FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST, PARA 4-1, DIMENSIONAL OUT OF TOLERANCES EXISTED IN DA TA SHEET REF. B,C,F AND J, FOR 7 TEST SPECIMENS. THIS WAS CAUSED BY, (A) EITHER SOLDERING WAS ROUGH AND RAISED AROUND D THE EDGES AND ON TOP OR (B) THE SPECIMEN WAS NOT CONSTRUCTED TO DRAWING. IN ADDITION, NO VENDOR IDENTIFICATION WAS PRESENT ON THE SPECIMENS.</p> <p>CORRECTIVE ACTION-CONTINUE PPT. EXCESS WEIGHT WILL NOT AFFECT TEST. CANS MUST BE WORKED TO SPECIFIED DIMENSIONS BEF ORE USE. THE SPECIMENS WERE REIDENTIFIED PER 60/C APPROVED METHOD. REF. CTCM NO 551-4-024.</p>						

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SYS-TEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME 31P	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B	27-04392-1 TRANSFORMER	UTP-PET 27-04392-1	950818	60/C	YES NO	YES SERVOMECHANISM NO 3 582239	092194
FAILURE MODE-STRUCTURAL. DURING PET LOT 3 INSERT STRENGTH TEST, PARA. 4.18, THE TEST SPECIMEN INSERT PULLED LOOSE A NO THE FIXTURE MADE AN IMPRESSION IN THE POTTING MATERIAL AS A TORQUE OF 2.0 POUND-INCHES WAS APPLIED. THIS WAS CAUSED BY POOR ADHESION BETWEEN POTTING MATERIAL AND INSERTS.							
CORRECTIVE ACTION-CAR 9864 SENT TO VENDOR WHICH ESPECIALLY CHECKS FOR CLEANING OF INSERTS PRIOR TO USE AND PREVENTION OF RECONTAMINATION IN PROCESS BY RELEASE AGENTS IN USE. REF. CTCN NO. 551-4-022.							
AUTOPILOT-SQUARE-A/B	7827C4493 TRANSFORMER	UTP-PET 27-04183-3	950811	60/C	YES NO	YES DECO NO 7769A	091703
FAILURE MODE-STRUCTURAL. DURING INSERT STRENGTH TEST, PARA. 4.18, THE POTTING MATERIAL CRACKED AND THE INSERTS BEGAN TO PULL OUT OF 4 SPECIMENS REPRESENTING LOTS 37, 39, 40, AND 41. THIS WAS CAUSED BY POOR ADHESION OF POTTING MATERIAL TO INSERT.							
CORRECTIVE ACTION-100 PERCENT CHECK OF LOTS RECEIVED ARE NOW PERFORMED AND UNITS FAILING ARE REJECTED TO VENDOR. VENDOR HAS ALREADY CORRECTED MANUFACTURING PROCEDURES AND DECO VAPS APPROVED TO CORRECT PROBLEMS IN POTTING RESIN. REF. CTCN NO. 551-4-021.							
AUTOPILOT-SQUARE-A/B	7869C/249-1 TRANSFORMER	UTP-EQUAL/PPPT 27-04128-1	950808	60/C	YES NO	YES 60/C NO	092260
FAILURE MODE-STRUCTURAL. DURING VISUAL INSPECTION, FOLLOWING THERMAL SHOCK TEST OF PARA. 4.12-2, THREE TEST SPECIMENS HAD CRACKS. THIS WAS CAUSED BY IMPROPER METHOD OF APPLYING GLASS WRAP DURING CONSTRUCTION.							
CORRECTIVE ACTION-SEALING TEST REBORN FOR CONFIDENCE AND METHOD OF APPLYING GLASS WRAP WILL BE MODIFIED TO PRECLUDE ANY SURFACE CRACKING OF POTTING MATERIAL. REF. CTCN NO. 551-4-020.							
AUTOPILOT-SQUARE-A/B	99C4242-1 TRANSFORMER	UTP-EQUAL/PPPT 27-04173-1	950807	60/C	YES NO	YES 60/C NO 27-04173-1	091960
FAILURE MODE-ELECTRICAL OPEN. DURING WINDING CONTINUITY CHECK FOLLOWING IMMERSION TEST, PARA. 4.11.1, THE PRIMARY WINDINGS OF 3 OUT OF 6 TEST SPECIMENS WERE FOUND OPEN. CAUSE WAS NOT KNOWN.							
CORRECTIVE ACTION-A CLOSE CONTROL IS MADE ON THE WINDING TENSION OF THE ULTRA FINE WIRE IN 1-2 WINDINGS. THE METHOD USED IN CONNECTING THE COIL TO THE TERMINAL LEAD HAS BEEN MODIFIED TO INSURE A GOOD TERMINATION WITH MINIMUM STRESS ON THE FINE COIL LEADS. THE MODIFICATIONS WILL BE DOCUMENTED ON A VAP AND SUBMITTED FOR APPROVAL. REF. CTCN NO. 551-4-019.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PAT OTM	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B	89C4242.1 TRANSFORMER	UTP-QUAL/PP7 27-04173-1	830707	60/C	YES 60/C NO 27-04173-1		891988
FAILURE MODE-OUT OF TOLERANCE. DURING PARA. 4.1.1, VISUAL INSPECTION, THREE TEST SPECIMENS WERE DIMENSIONALLY OUT OF TOLERANCES FOR DATA SHEET REFERENCES K, L, AND S. THIS WAS CAUSED BY THE TEFLON HOLD PLATE BEING OUT OF TOLERANCE DURING MANUFACTURE.							
CORRECTIVE ACTION-NONE OF THE DIMENSIONS ARE CRITICAL AND NO CORRECTIVE ACTION IS DEEMED NECESSARY. DEFECTIVE PARTS WERE REPLACED BY 31 JULY 1965. REF. CTCM NO. 551-4-013.							
AUTOPLOT-SQUARE-A/B	89C4243.1 TRANSFORMER	UTP-QUAL/PP7 27-04170-3	830706	60/C	YES 60/C NO 27-04170-3		891991
FAILURE MODE-OUT OF TOLERANCE. THREE TEST SPECIMENS HAD DIMENSIONAL OUT OF TOLERANCES DURING PARA. 4.1.1, VISUAL INSPECTION. ONE SPECIMEN WAS 5.01 POUNDS OVER THE REQUIRED WEIGHT OF 0.10 POUNDS MAXIMUM. ONE UNIT HAD 8 THREADS AND THE OTHER UNIT HAD 7 THREADS WHERE 8 THREADS MINIMUM IS REQUIREMENT FOR INSERTS. THIS WAS CAUSED BY POTTING MATERIAL IN THE INSERTS.							
CORRECTIVE ACTION-POTTING LABORATORY INSTRUCTED TO REMOVE ALL POTTING THAT MAY GET IN THE INSERTS. REF. CTCM NO. 551-4-013.							
AUTOPLOT-SQUARE-A/B	FR 89C 4267.1 TRANSFORMER	UTP-QUAL/PP7 27-04167-1	830702	60/C	YES 60/C NO		892307
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST, PARA. 4.1.1, DIMENSIONAL OUT OF TOLERANCES WERE OBSERVED ON FOUR SPECIMENS FOR DATA SHEET REFERENCE M. ALSO ON HIGH SIDE (APPROX 0.22 LB) OF WEIGHT REQUIREMENT OF 0.10 LBS MAXIMUM. THIS WAS CAUSED BY TEFLON HOLD PLATES BEING WORN OUT AND A SPEC. CONTROL DRAWING ERROR.							
CORRECTIVE ACTION-TEFLON PLATES RECHECKED AND OUT OF TOLERANCE PLATES DISCARDED AND REPLACED. SPEC. CONTROL DRAWING WAS CORRECTED TO READ MAX 0.25 LBS. REF. CTCM NO. 551-4-013.							
AUTOPLOT-SQUARE-A/B	FR89C4048.1 CHOKE-TRANSFORMER TYPE	UTP-QUAL/PP7 27-04160-1	830702	60/C	YES 60/C NO		892293
FAILURE MODE-OUT OF TOLERANCE. VISUAL INSPECTION, PARA. 4.1.1, DIMENSIONS WERE OUT OF TOLERANCE DESIGNATED BY DATA SHEET REFERENCE G AND L ON MOST OF SEVEN SPECIMENS. THIS WAS CAUSED BY WORN TEFLON PLATES WHICH CONTROL SPACING AND DIAMETER OF BUTTON.							
CORRECTIVE ACTION-TEFLON PLATES THAT WERE OUT OF TOLERANCE WERE REPLACED. REF. CTCM NO. 551-4-014.							

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AVS EW SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B	FR8C4248-1 TRANSFORMER	UTP-QUAL/PPT 27-04178-1	650701	60/C	YES	60/C NO	692267
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST, PARA. 4.1, SEVEN SPECIMENS HAD DIMENSIONAL OUT OF TOL ERANCES IN DATA SHEET REFERENCES 5 AND J. IN GENERAL MOST INSERTS ALSO HAD (1) EXCESS RESIN IN THE INSERT, (2) SCREW S COULD NOT BE THREADED INTO INSERTS, (3) INSERTS SET INTO POTTING AT 3 DEGREES ANGLES OR MORE. TEFLON PLATE USED TO POSITION INSERTS HAD COLD FLOWED DUE TO AGE.							
CORRECTIVE ACTION-PPT TESTS CONTINUED. BY 31-7-65 THE BIDS FROM 780-2-42 WERE OBTAINED AND REPLACEMENT OF WORN OUT TEFLON PLATES WAS COMPLETED. REF. CTCN NO. 551-4-012.							
AUTOPLOT-SQUARE-A/B	FR27C4432-1 TRANSFORMER	UTP-PET 27-04178-3	650527	60/C	YES	60/C NO	691993
FAILURE MODE-STRUCTURAL. DURING PET LOTS 2 AND 3, THE TEST SPECIMEN HAD BUBBLES APPEAR AT A RATE OF ONE EVERY TWELV E SECONDS WHILE THE SPECIMEN WAS IMMERSSED IN 95 DEG C WATER DURING PARA 4.2, SEALING TEST. THIS WAS CAUSED BY A SURF ACE IMPERFECTION ABOUT 4 MILS DEEP.							
CORRECTIVE ACTION-NONE. THE HOLE WAS OPENED TO PREVENT AIR ENTRAPMENT, RETESTED AND NO BUBBLES APPEARED. ENTIRE LOT 3 2 AND 5 WERE SUBJECTED TO SEALING TEST AND ALL PASSED. REF. CTCN NO. 551-4-011.							
AUTOPLOT-SQUARE-A/B	SLV-90-04-5035F 3MRD-DIODE	FAR 69-42002-3	650520	WTR	YES	TEXAS INSTRUME NO MTS	693014
FAILURE MODE-ERRATIC OPERATION. DURING PERFORMANCE OF DPL PROCEDURE 27-94445 SPIN-MOTOR ROTATION-DETECTOR (3MRD) IN OMENTARY DROPOUTS WERE RECEIVED FOR APPROXIMATELY 25 MINUTE PERIODS FROM THE TIME THE PACKAGE WAS STARTED UNTIL THE FIRST TRANSFER TO INTERNAL POWER. THE FAILURE WAS CONFIRMED. THE EXACT CAUSE OF THE INTERMITTENT 3MRD DROPOUT IS NOT KNOWN, BUT NOISE SIGNALS GENERATED IN THE POWER SUPPLY, P/N 27-41382-3 S/N 59A, WERE FOUND TO BE THE MAJOR CONTRIBU TORS TO THIS INTERMITTENT 3MRD PROBLEM. REPLACING POWER SUPPLY BOARD WITH DIFFERENT DIODES ELIMINATED FAILURE.							
CORRECTIVE ACTION-BAR SLV-90-04-8034 RECOMMENDED CHANGING DIODES. CIC 07598 CHANGED POWER SUPPLY (P/N 27-41382) DIO DES FROM IN 1818 TO TM 27 TYPES ON ATLAS/CENTRAIR BOOSTERS. A PERMANENT CHANGE (ICP 7385,7386) IS BEING INCORPORATED TO USE A HIGH RELIABILITY REPLACEMENT DIODE (1N2941) FOR THE (7ME7) DIODE.							
AUTOPLOT-SQUARE-A/B	27C4403 TRANSFORMER	UTP-PET 27-04178-1	650520	60/C	YES	OECCO NO 7340	
FAILURE MODE-STRUCTURAL. LOT 92 PET SPECIMEN HAD VOID IN POTTING AND IMPREGNATION OF COILS WAS UNSATISFACTORY DURING 6 VISUAL AND MECHANICAL INSPECTION FOLLOWING SECTIONING, PARA. 4.13. THIS WAS CAUSED BY NO PERFORATION IN BOBBIN TO PERMIT RESIN TO FLOW IN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE DIF TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
							991905
CORRECTIVE ACTION-VENDOR CORRECTIVE ACTION WAS 1) BOBBINS TO BE PERFORATED PER 60/C PRACTICE AND 2) POLYESTER MAT 9 SUBSTITUTED FOR NYLAR TAPE IN INTERMINGLING INSULATION. REF. CTCN NO. 531-4-010.							
AUTOPILOT-SQUARE-A/B	27C4403 TRANSFORMER	UTP-PPT 27-04178-1	650519	60/C	YES	OCCO NO 7340	991906
FAILURE MODE-STRUCTURAL. LOT 32 PPT SPECIMEN FAILED INSERT-STRENGTH TEST. PARA 4.12-INSERT A BEGAN TO TURN AT 4.1 POUND INCHES AND INSERT B BEGAN TO TURN AT 3.5 POUND INCHES AND POTTING CRACKED. REQUIREMENT IS TO WITHSTAND 4.7 POUND INCHES OF TORQUE. THIS WAS CAUSED BY TYPE OF INSERTS USED.							
CORRECTIVE ACTION-VENDOR CORRECTIVE ACTION WAS TO USE BRASS INSERTS INSTEAD OF STAINLESS STEEL TYPE. REF. CTCN NO. 531-4-009.							
AUTOPILOT-SQUARE-A/B	PR 69C 4063.1 CHOKE-TRANSFORMER TYPE	UTP-QUAL/PPT 27-04180-1	650506	60/C	YES	APPLIED CCAPON NO ENTS INC. 1323-ACI	992306
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION OF INTERNAL CONTRUCTION TEST, PARA. 4.14, TWO TEST SPECIMEN 8 EXHIBITED DISCREPANCIES IN THAT THE W/ DINGS AND CORES WERE NOT CENTERED IN THE CASINGS. THIS WAS CAUSED BY POOR FABRICATION TECHNIQUE DURING MANUFACTURE.							
CORRECTIVE ACTION-THIS WAS CONSIDERED A VERY MINOR PROBLEM AND VENDOR WAS NOTIFIED OF INCIDENT AS INFORMATION ITEM RATHER THAN REQUEST FOR CORRECTIVE ACTION. REF. CTCN NO. 531-4-006.							
AUTOPILOT-SQUARE-A/B	69C-4061.1 TRANSFORMER	UTP-QUAL/PPT 27-04180-3	650506	60/C	YES	OCCO-DECO NO 8577	992196
FAILURE MODE-STRUCTURAL. THE POTTING IMPREGNATION OF THREE TEST SPECIMENS WAS INCOMPLETE AS INDICATED BY VISUAL INSPECTION, PARA. 4.16. THIS WAS CAUSED BY LACK OF PERFORATIONS IN BOBBINS TO PERMIT RESIN TO FLOW IN DURING MANUFACTURE.							
CORRECTIVE ACTION-VENDOR TO 1) PERFORATE BOBBINS IN ACCORDANCE WITH 60/C PRACTICE. 2) MAY SUBSTITUTE POLYESTER MAT FOR NYLAR INTERLAYER TAPE WHEN SPACE FACTOR PERMITS. REF-CTCN NO. 531-4-008.							
AUTOPILOT-SQUARE-A/B	69C-4062.1 TRANSFORMER	UTP-QUAL/PPT 27-04178-5	650506	60/C	YES	OCCO-DECO NO 7097	992196
FAILURE MODE-STRUCTURAL. THE POTTING IMPREGNATION OF TWO TEST SPECIMENS WAS INCOMPLETE DURING VISUAL INSPECTION. PARA. 4. THIS WAS CAUSED BY BOBBINS NOT PERFORATED TO PERMIT IMPREGNATION.							
CORRECTIVE ACTION-VENDOR TO (1) BOBBINS WILL BE PERFORATED PER 60/C BOBBINS WHICH HAVE BEEN SUCCESSFUL. 2) VENDOR WILL USE POLYESTER MAT AS INTERMINGLING INSULATION REPLACING NYLAR (WHEN SPACE FACTOR PERMITS). REF. CTCN NO. 531-4-007.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B	85C4084.1 TRANSFORMER	UTP-GUAL/PPT 27-04179-5	850503	60/C	YES NO	OSBORNE-OECO 7997
<p>FAILURE MODE-STRUCTURAL. 4 TEST SPECIMENS FAILED INSERT STRENGTH TEST, PARA. 4.11, AT VALUES OF 2.0 TO 4.0 INCH-POUNDS WHERE 4.7 INCH-POUNDS IS REQUIRED. THIS WAS CAUSED BY THE TYPE OF INSERT USED AND POSSIBLE POOR POTTING MATERIAL.</p> <p>CORRECTIVE ACTION-VENDOR TO (1) USE SAME BRASS INSERT HAVING DEEPER KNURL AND ANNULAR RING THAT GD/C HAS USED SUCCESSFULLY, (2) SUBMIT A PROCESS SPEC. FOR THE CLEANING OF ABOVE INSERTS, (3) REVISE OECO BC SPECS TO PREVENT USE OF OUTDATED MATERIAL, (4) REVISE OECO MIXING SPECS TO INSURE BATCH OF RESIN IS HOMOGENEOUS BEFORE USE. REF-CYCTH NO. 551-4-004.</p>						
AUTOPLOT-SQUARE-A/B	89C4081.1 TRANSFORMER	UTP-GUAL/PPT 27-04180-3	850503	60/C	YES NO	OSBORNE-OECO 8377
<p>FAILURE MODE-STRUCTURAL-DURING PARA. 4.13 INSERT STRENGTH TEST, 4 TEST SPECIMENS FAILED AT VALUES FROM 3.5 TO 4.0 INCH POUNDS WHERE REQUIRED TORQUE IS 4.7 INCH POUNDS. THIS WAS CAUSED BY TYPE OF INSERTS USED, AND POOR POTTING RESIN.</p> <p>CORRECTIVE ACTION-VENDOR TO (1) USE BRASS INSERTS THAT HAVE DEEPER KNURL AND ANNULAR RING TO REPLACE STAINLESS STEEL INSERT, (2) SUBMIT CLEANING SPEC. AND HANDLING THEREAFTER SPEC TO PREVENT USE OF CONTAMINATED INSERTS, (3) REVISE BC SPECS. TO PREVENT USE OF OUT OF DATE POTTING RESINS, (4) REVISE POTTING SPEC TO INSURE THOROUGH MIXING OF BATCH OF RESINS BY COMPONENTS TO INSURE HOMOGENEOUS RESIN MIXES. REF-CYCTH NO. 551-4-005.</p>						
AUTOPLOT-SQUARE-A/B	09-4082 TRANSFORMER	UTP-GUAL/PPT 27-04179-5	850412	60/C	NO NO	OSBORNE 7997
<p>FAILURE MODE-STRUCTURAL. DURING PARA. 4.14, FOLLOWING MOISTURE RESISTANCE TEST, 3 OF 8 TEST SPECIMENS SHOWED VARIOUS DEGREES OF PIN EROSION. THE HEAVIEST EROSION REDUCED THE BASE OF THE PINS TO APPROXIMATELY HALF THEIR NORMAL SIZE. THIS WAS CAUSED BY GALVANIC ACTION BETWEEN THE TEST SPECIMEN PINS AND THE MAGNESIUM TEST FIXTURE.</p> <p>CORRECTIVE ACTION-AVO WAS SENT TO THE TEST LAB ON 21 APRIL 1968 DIRECTING THAT MAGNESIUM SHALL NOT BE USED IN MOISTURE RESISTANCE TESTS. THE TEST LAB STATED THAT ANODIZED ALUMINUM FIXTURES WILL NOW BE USED ON ALL FUTURE MOISTURE RESISTANCE TESTS. REF. CYCTH NO. 551-4-005.</p>						
AUTOPLOT-SQUARE-A/B	7889C4084.1 TRANSFORMER	UTP-GUAL/PPT 27-04183-1	850402	60/C	YES NO	OSBORNE 10318
<p>FAILURE MODE-STRUCTURAL. DURING VISUAL INSPECTION PORTION, FOLLOWING IMMERSION TEST, PARA. 4.11, TWO TEST SPECIMENS WERE CRACKED AND BELIEVED CRACKED DUE TO THERMAL SHOCK, BUT UNNOTICED UNTIL AFTER IMMERSION. CAUSED BY POOR POTTING RESIN. RESIN READ 68-70 SHORE D HARDNESS AND WAS OF CHEEZY CONSISTENCY. SHORE D SHOULD BE 80-80.</p>						

GENERAL DYNAMICS
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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI DIP	VENDOR NAME VENDOR PART NO	
							092302
	CORRECTIVE ACTION-VENDOR SUBMITTED CORRECTIVE ACTION THAT WAS SATISFACTORY TO 60/C DESIGN TO PREVENT USE OF OUTDATE D MATERIAL OR MISUSE OF INDATE MATERIAL. VENDOR THEN SUBMITTED SAMPLES AT HIS OWN EXPENSE AND 60/C RERAN PPT. REF. CTCTH NO. 331-4-002.						
	AUTOPLOT-SQUARE-A/B	FR89CA083.1 TRANSFORMER	UTP-QUAL/PPT 27-04184-1	650402	60/C	YES APPLIED COMPO NO ENTS AC12304	092286
	FAILURE MODE-STRUCTURAL. DURING PARA 4.12, VISUAL INSPECTION FOLLOWING IMMERSION TEST, TWO TEST SPECIMENS WERE CRAC KED ON SURFACE OF BODY. IT IS SUSPECTED THAT THIS OCCURRED DURING THERMAL SHOCK TEST BUT WENT UNNOTICED UNTIL AFTER IMMERSION TEST. THIS WAS CAUSED BY POOR POTTING RESIN. RESIN READ 85-70 SHORE D HARNNESS AND WAS OF CHEESEY CONSISTAN CY. SHORE D SHOULD BE 80-90.						
	CORRECTIVE ACTION-VENDOR SUBMITTED CORRECTIVE ACTION THAT WAS SATISFACTORY TO 60/C DESIGN TO PREVENT USE OF OUTDATE D MATERIAL OR MISUSE OF INDATE MATERIAL. VENDOR WILL THEN RESUBMIT SAMPLES AT OWN EXPENSE AND 60/C WILL RERUN PPT. R EF. CTCTH NO. 331-4-001.						092287
	AUTOPLOT-SQUARE-A/B	FR89CA084.1 TRANSFORMER	UTP-QUAL/PPT 27-04181-1	650330	60/C	YES OSBORNE NO 10318	
	FAILURE MODE-STRUCTURAL. DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK, PARA. 4.10, THE TEST SPECIMEN HAD CRACK S ON THE BODY OF THE TRANSFORMER. THIS WAS CAUSED BY POTTING RESIN. RESIN READ 85-70 SHORE HARNNESS AND WAS OF CHEE SY CONSISTANCY. SHORE D SHOULD BE 80-90.						
	CORRECTIVE ACTION-VENDOR SUBMITTED CORRECTIVE ACTION THAT WAS SATISFACTORY TO 60/C DESIGN TO PREVENT USE OF OUTDATE D MATERIAL OR MISUSE OF INDATE MATERIAL. VENDOR THEN SUBMITTED NEW TEST SAMPLES AND PPT TEST REPEATED. REF. 330-3-01 9.						092301
	AUTOPLOT-SQUARE-A/B	FR89CA083.1 TRANSFORMER	UTP-QUAL/PPT 27-04182-1	650330	60/C	YES OSBORNE NO. 10318	
	FAILURE MODE-STRUCTURAL DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK TEST PARA. 4.9, TWO TEST SPECIMENS HAD CRA CKS ON THE BODY OF THE TRANSFORMER. THIS WAS CAUSED BY POOR POTTING RESIN. RESIN READ 85-70 SHORE D HARNNESS AND WAS OF CHEESEY CONSISTANCY. SHORE D SHOULD BE 80-90.						
	CORRECTIVE ACTION-VENDOR SUBMITTED CORRECTIVE ACTION THAT WAS SATISFACTORY TO 60/C DESIGN TO PREVENT USE OF OUTDATE D MATERIAL OR MISUSE OF INDATE MATERIAL AND ALSO RESUBMITTED SAMPLES AT OWN EXPENSE FOR RERUN OF PPT TEST. REF. CTCT H NO. 330-3-020.						
	AUTOPLOT-SQUARE-A/B	FR89CA087.1 CHOKE/TRANSFORMER TYPE	UTP-QUAL/PPT 27-04180-1	650330	60/C	YES OSBORNE NO 10321	
	FAILURE MODE-STRUCTURAL. DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK, PARA. 4.11, TWO TEST SPECIMENS HAD SEVER AL CRACKS ON THE BODY OF EACH TRANSFORMER. THIS WAS CAUSED BY CRACKS OF GLASS TAPE REINFORCEMENT DURING CONSTRUCTI ON PHASE AT VENDOR'S FACILITY.						

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF OTH	PRI VENDOR NAME VENDOR PART NO
					092294
	CORRECTIVE ACTION-VENDOR WAS NOTIFIED THROUGH GO/C PURCHASING THAT THEY HAD TO TAKE STEPS TO PREVENT OMISSION OF GLASS TAPE REINFORCEMENT. VENDOR RESUBMITTED NEW PPT SPECIMENS AND NEW PPT TO BE RERUN. THIS WAS ACCOMPLISHED. REF. CT CTN NO. 358-3-022.				
AUTOPILOT-SQUARE-A/B	FR89C4048-1 CHOKE-TRANSFORMER TYPE	UTP-QUAL/PPY 27-04180-1	850330	GO/C	YES GO/C NO
	FAILURE MODE-STRUCTURAL. DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK TEST, PARA. 4.11, THREE SPECIMENS HAD CRACKS ON TRANSFORMER BODY. THIS WAS CAUSED BY OMISSION OF GLASS TAPE REINFORCEMENT.				
	CORRECTIVE ACTION-GO/C TOOK STEPS TO PREVENT OMISSION OF GLASS TAPE REINFORCEMENT. GO/C RESUBMITTED NEW PPT SAMPLES AND A NEW PPT WAS TO BE RERUN, WHICH WAS ACCOMPLISHED. REF. CTCTH NO. 358-3-021.				
AUTOPILOT-SQUARE-A/B	FR89C4048-1 TRANSFORMER	UTP-QUAL/PPY 27-04180-1	850330	GO/C	YES OSOORNE NO DECO10380
	FAILURE MODE-STRUCTURAL. DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK TEST, PARA. 4.12, SIX SPECIMENS HAD SIGNIFICANT CRACKS ON PRIMARY AND SECONDARY SIDES OF TRANSFORMERS. THIS WAS CAUSED BY OMISSION OF GLASS TAPE REINFORCEMENT DURING CONSTRUCTION PHASE BY VENDOR.				
	CORRECTIVE ACTION-VENDOR WAS NOTIFIED THROUGH GO/C PURCHASING, THAT THEY HAD TO TAKE STEPS TO PREVENT OMISSION OF GLASS TAPE REINFORCEMENT. VENDOR TO RESUBMIT NEW PPT SPECIMENS AND NEW PPT TO BE RERUN. THIS WAS ACCOMPLISHED. REF. CTCTH NO. 358-3-018.				
AUTOPILOT-SQUARE-A/B	FR89C4045-1 TRANSFORMER	UTP-QUAL/PPY 27-04180-1	850329	GO/C	YES GO/C NO
	FAILURE MODE-OUT OF TOLERANCE. DURING LIFE TEST, PARA. 4.7, TEST SPECIMEN WAS SEVERELY BURNED ON BOTTOM AND AROUND THE INPUT PINS. RESISTANCES OF THE WINDINGS WERE VERY LOW AND OUT OF TOLERANCE. CAUSE WAS NOT ACTUALLY DETERMINED TO EITHER TEST EQUIPMENT, OR TEST PERSONNEL ERROR, OR BE ASCRIBED CONCLUSIVELY TO ANY DEFECT IN TRANSFORMER.				
	CORRECTIVE ACTION-RERUN OF LIFE TEST WITH REPLACEMENT SPECIMEN INCLUDED MONITORING AND CONTINUOUSLY RECORDING INPUT AND OUTPUT VOLTAGES AND CURRENTS AND SURFACE TEMPERATURE OF THE SPECIMEN. REF. CTCTH NO. 358-3-017.				
AUTOPILOT-SQUARE-A/B	FR89C4050-1 CHOKE-TRANSFORMER TYPE	UTP-QUAL/PPY 27-04180-1	850322	GO/C	NO GO/C NO
	FAILURE MODE-OUT OF TOLERANCE. DURING INDUCTANCE MEASUREMENT OF ELECTRICAL CHARACTERISTICS CHECKOUT TEST, ONE TEST SPECIMEN HAD INDUCTANCE VALUE OF 10.895 WHICH WAS OUT OF TOLERANCE ON THE LOW SIDE. REQUIRED IS 10.4344-10.6636 HENRYS. THIS WAS CAUSED BY CHECKOUT EQUIPMENT USED IN MANUFACTURING PHASE OF TRANSFORMER, BEING IN ERROR AND OUT OF TOLERANCE.				

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-MANUFACTURING EQUIPMENT USED IN SETTING PROPER INDUCTANCE VALUES INTO COIL OF TRANSFORMER CORRECTED AND ALL OTHER TEST UNITS RECHECKED. REF. CTCN NO. 358-5-016.					
AUTOPILOT-SQUARE-A/B	89-4031 TRANSFORMER	UTP-QUAL/PPT 27-04190-3	650310	60/C	YES 60/C NO 27-04190-3
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION, PARA. 4.1.1, TWO TEST SPECIMENS HAD DIMENSIONAL OUT OF TOLERANCES FOR DATA SHEET REFERENCE K WHICH IS REQUIRED TO BE 0.030 TO 0.040 INCHES. ONE UNIT MEASURED 0.037 INCHES, THE OTHER 0.045 INCHES. THIS WAS CAUSED BY A DEFECTIVE TEFLON PLATE DURING MANUFACTURE.					
CORRECTIVE ACTION-TEFLON HOLD PLATES RESPONSIBLE FOR OUT OF TOLERANCE DIMENSION HAVE BEEN REPLACED. REF. CTCN NO 358-5-016.					
AUTOPILOT-SQUARE-A/B	89-4032 TRANSFORMER	UTP-QUAL/PPT 27-04179-5	650310	60/C	YES 60/C NO 27-04179-5
FAILURE MODE-OUT OF TOLERANCE. THREE TEST SPECIMENS HAD DIMENSIONAL OUT OF TOLERANCES FOR DATA SHEET REFERENCE B DURING PARA. 4.1.1, VISUAL INSPECTION. THE UNITS MEASURED 0.044, 0.043, AND 0.042 INCHES. WHERE REQUIREMENT IS 0.030 TO 0.040 INCHES. THIS WAS CAUSED BY A DEFECTIVE TEFLON PLATE NOT GIVING THE SPECIFIED INSERT BUTT.					
CORRECTIVE ACTION-TEFLON HOLD PLATES HAVE BEEN REPLACED. REF. CTCN NO. 358-5-011.					
AUTOPILOT-SQUARE-A/B	FR89C1049.1 TRANSFORMER	UTP-QUAL/PPT 27-04193-1	650309	60/C	YES 60/C NO 27-04193-1
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST, PARA. 4.1.1, DIMENSIONAL OUT OF TOLERANCES WERE NOTED FOR THREE TEST SPECIMENS FOR DATA SHEET REFERENCE K. DIMENSIONS WERE 0.050, 0.030, AND 0.050 INCHES WERE REQUIRED. WHILE 0.030 TO 0.040 INCHES IS REQUIRED. THIS WAS CAUSED BY A DEFECTIVE TEFLON HOLD PLATE TO GIVE SPECIFIED INSERT BUTT DURING CONSTRUCTION.					
CORRECTIVE ACTION-TEFLON HOLD PLATES RESPONSIBLE FOR OUT OF TOLERANCE DIMENSIONS HAVE BEEN REPLACED IN 60/C MAGNETIC COMPONENT LABORATORY. REF. CTCN NO. 358-5-007.					
AUTOPILOT-SQUARE-A/B	FR89C-4084.1 TRANSFORMER	UTP-QUAL/PPT 27-04193-1	650309	60/C	YES OSBORNE-DECO NO 10316
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST, PARA. 4.1.1, DIMENSIONAL OUT OF TOLERANCES WERE NOTED FOR TWO TEST SPECIMENS FOR DATA SHEET REFERENCE K. READING OF 0.048 AND 0.045 INCHES WERE NOTED WHEN REQUIRED DIMENSION IS 0.030 TO 0.040 INCHES. THIS WAS CAUSED BY THE BUTTON AROUND THE INSERT BEING TOO LARGE DUE TO DEFECTIVE HOLD PLATE USED DURING CONSTRUCTION.					

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI VENDOR NAME	OTH VENDOR PART NO	
							992303
CORRECTIVE ACTION-VENDOR WAS NOTIFIED OF PROBLEM AND HE AGREED TO CHECK AND CORRECT AS NECESSARY THE RESPONSIBLE MO LD PARTS. REF. CTCTH NO. 959-3-003.							
AUTOPLOT-SQUARE-A/B	FR69C4047-1 TRANSFORMER	UTP-QUAL/PPT 27-04161-1	630309	60/C	YES	60/C NO	992299
FAILURE MODE-OUT OF TOLERANCE. VISUAL INSPECTION, PARA. 4.1, THREE TEST SPECIMENS HAD DIMENSIONAL OUT OF TOLERANCES FOR DATA SHEET REFERENCE W. ALL READINGS WERE HIGH, THAT IS 0.048, 0.050, AND 0.051 INCHES. WERE REQUIRED VALUE IS BETWEEN 0.030 AND 0.040 INCHES. THIS WAS CAUSED BY A DEFECTIVE TEFLON MOLD PLATE TO GIVE SPECIFIED INSERT BUTTON.							
CORRECTIVE ACTION-TEFLON MOLD PLATES RESPONSIBLE FOR OUT OF TOLERANCE DIMENSIONS HAVE BEEN REPLACED IN 60/C MAGNET/I C COMPONENT LABORATORY. REF. CTCTH NO. 959-3-013.							
AUTOPLOT-SQUARE-A/B	FR69C4048-1 TRANSFORMER	UTP-QUAL/PPT 27-04162-1	630309	60/C	YES	60/C NO	992300
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST, PARA. 4.1, THREE TEST SPECIMENS HAD DIMENSIONAL OUT O F TOLERANCES FOR DATA SHEET REFERENCE W. THAT IS ALL READINGS WERE HIGH, 0.042, 0.051, AND 0.041 INCHES. WERE REQUI RED VALUE IS BETWEEN 0.030 AND 0.043 INCHES. THIS WAS CAUSED BY A DEFECTIVE TEFLON MOLD PLATE TO GIVE SPECIFIED INSE RT BOTTOM. DURING CONSTRUCTION.							
CORRECTIVE ACTION-TEFLON MOLD PLATES RESPONSIBLE FOR OUT OF TOLERANCE DIMENSIONS HAVE BEEN REPLACED IN 60/C MAGNET/I C COMPONENT LABORATORY. REF. 959-3-014.							
AUTOPLOT-SQUARE-A/B	FR69C4066-1 TRANSFORMER	UTP-QUAL/PPT 27-04161-1	630309	60/C	YES	60/C NO	992298
FAILURE MODE-OUT OF TOLERANCE. VISUAL INSPECTION 1 PARA. 4.1, ALL SIX TEST SPECIMENS HAD DIMENSIONAL OUT OF TOLERAN CES FOR DATA SHEET REFERENCE W. ALL WERE HIGHER THAN WHAT WAS REQUIRED. THIS WAS CAUSED BY THE BUTTON SURROUNDING TH E INSERT BEING TOO LARGE.							
CORRECTIVE ACTION-THIS WAS CONSIDERED A MINOR DISCREPANCY. THE VENDOR WAS CONTACTED AND AGREED TO CHECK AND CORRECT NECESSARY THE RESPONSIBLE MOLD PARTS. REF. CTCTH NO. 959-3-004.							
AUTOPLOT-SQUARE-A/B	603-1240 TRANSFORMER	UTP-PET 27-04179-3	630309	60/C	YES	60/C NO	992298
FAILURE MODE-STRUCTURAL. LOT 1 TEST SPECIMEN HAD A CRACK IN THE POTTING AFTER FIVE THERMAL SHOCK CYCLES, PARA. 4.7.2 .1, DURING PET TESTING. THE CAUSE COULD NOT BE DETERMINED.							

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-THREE ADDITIONAL SPECIMENS FROM LOT 1 WERE TESTED AND PASSED. LOT 1 WAS ACCEPTED. REF. CTCTH NO. 558-5-003.						091992
AUTOPILOT-SQUARE-A/B	FR89C4043.1 TRANSFORMER	UTP-QUAL/PPT 27-04159-1	650308	60/C	YES	60/C NO	092290
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION, PARA. 4.1, ONE SPECIMEN HAD DIMENSIONAL OUT OF TOLERANCE, FOR DATA SHEET REFERENCE A, THAT IS 1.95 INCHES WHERE 1.90 PLUS .03 MINUS .03 INCHES IS REQUIRED.							
CORRECTIVE ACTION-60/C MAGNETIC COMPONENT LABORATORY TO GRIND TO RIGHT DIMENSION ON FUTURE UNITS. OUT OF TOLERANCE CONSIDERED VERY MINOR. REF. CTCTH NO. 558-5-009.							
AUTOPILOT-SQUARE-A/B	FR89C4044.1 TRANSFORMER	UTP-QUAL/PPT 27-04124-1	650308	60/C	YES	60/C NO	092285
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST, PARA. 4.1, FOUR TEST SPECIMENS EXHIBITED DIMENSIONAL OUT OF TOLERANCE CONDITIONS FOR DATA SHEET REFERENCE K. DEFECTIVE TEFLON MOLD PLATE TO GIVE SPECIFIED INSERT BUTTON IS RESPONSIBLE FOR DIMENSIONAL DISCREPANCIES.							
CORRECTIVE ACTION-TEFLON MOLD PLATES RESPONSIBLE FOR OUT OF TOLERANCE DIMENSION HAVE BEEN REPLACED. REF. CTCTH NO. 558-5-010.							
AUTOPILOT-SQUARE-A/B	FR89C4046.1 TRANSFORMER	UTP-QUAL/PPT 27-04160-1	650308	60/C	YES	60/C NO	091687
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION, PARA. 4.1, ALL SEVEN TEST SPECIMENS HAD DIMENSIONAL OUT OF TOLERANCE FOR DATA SHEET REFERENCE L, THAT IS 0.30 INCHES WHERE 0.25 INCHES IS REQUIRED.							
CORRECTIVE ACTION-TEFLON MOLD PLATES RESPONSIBLE FOR BUTTON DIMENSION ERRORS HAVE BEEN REPLACED. REF. CTCTH NO. 558-5-008.							
AUTOPILOT-SQUARE-A/B	27-3978 TRANSFORMER	UTP-PET 27-04185-1	641127	60/C	YES	CAL. MAG. CORP NO	092397
FAILURE MODE-STRUCTURAL. DURING IMMERSION TEST, PARA. 4.8, THE TEST SPECIMEN WAS CRACKED AND A MILKY WHITE FILM COVERED THE ENTIRE SURFACE. THIS WAS CAUSED BY THE TRANSFORMER NOT BEING CENTERED IN THE MOLD DURING MANUFACTURE OF PET LOT 14.							
CORRECTIVE ACTION-CARR 5683 SENT TO VENDOR TO IMPROVE POSITIONING OF TRANSFORMERS IN THE MOLD AND TO TIGHTEN QUALITY CONTROL TO INSURE THAT THIS IS ACCOMPLISHED. 60/C DESIGN REQUIRES A MINIMUM FIFTY MILS OF POTTING MATERIAL PER SID E. VISUAL EXAMINATION SHOWS THE CORE IMPRESSION WHEN THE UNITS ARE NOT CENTERED. REF-CTCTH NO. 558-5-002.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1969

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SOURCE-A/B	27-3895 TRANSFORMER	UTP-PET 27-04171-3	641118	60/C	YES	CAL. MAG. COMP NO	091990
FAILURE MODE-STRUCTURAL. DURING PET LOT 16 TEST, SPECIMEN HAD SEVERAL CRACKS ON ONE SIDE FOLLOWING THERMAL SHOCK TEST PARA. 4.7, CRACKS APPEARED ALONG CORE. CRACKS WERE CAUSED BY TRANSFORMER NOT BEING CENTERED IN MOLD DURING MANUFACTURE.							
CORRECTIVE ACTION-DESIGN GROUP AND QUALITY ASSURANCE INSPECTED ALL 104 UNITS. 80 ACCEPTED AND 24 REJECTED. CARR 568 SENT TO VENDOR TO IMPROVE POSITIONING OF TRANSFORMERS IN THE MOLD AND TO TIGHTEN QUALITY CONTROL TO INSURE THAT THIS IS ACCOMPLISHED. REF. CTECH NO. 536-5-001.							
AUTOPLOT-SOURCE-A/B	27-3784 TRANSFORMER	UTP-PET 27-04170-1	641023	60/C	YES	QECO NO 7336	092020
FAILURE MODE-STRUCTURAL. LOT 16 TEST SPECIMEN HAD TWO INSERTS PULL OUT AT BELOW THE REQUIRED TORQUE VALUE OF 14.5 INCH POUNDS DURING THE INSERT STRENGTH TEST, PARA. 4.12. THIS WAS CAUSED BY FAULTY POTTING TECHNIQUES.							
CORRECTIVE ACTION-CORRECTIVE ACTION REQUEST NO. 5654 WAS SENT TO VENDOR TO INCREASE SC IN POTTING PROCESSES. REF. P R 634-2-427.							
AUTOPLOT-SOURCE-A/B	SLV-AB-04-4913F ACCELEROMETER CONNECTOR	FAR 27-04090-801	7107	FACTORY	YES	EDCLIFF NO 106892-7	092630
FAILURE MODE- FAIL TO OPERATE. NO OUTPUT. CAUSED BY A BROKEN PIN ON THE RECEPTACLE. POSSIBLY CAUSED BY TWISTING THE LOCKING RECEPTACLE WHILE ATTACHING MATING CONNECTOR.							
CORRECTIVE ACTION-IN REPLY TO BAR SLV-AB-04-3974 VENDOR SAID IT IS STANDARD PROCEDURE TO APPLY STYCAST TO THE RETAINING NUT AND THAT THIS UNIT WAS MISSED-AN OVERSIGHT. BAR-AB-04-8024 RECOMMENDED THE ACCELEROMETER SPECIFICATION BE CHANGED TO REQUIRE THAT STYCAST BE ADDED TO THE RETAINING NUT.							
AUTOPLOT-SOURCE-A/B	LV-AB-04-4814F STAGING ACCELEROMETER	FAR (14099-3	1960	FACTORY	YES	EDCLIFF NO 106892-3	092631
FAILURE MODE-ERRATIC OPERATION. MONITORED SIGNAL DEACTIVATED TWICE FOR APPROXIMATELY 0.1 SECOND JUST AFTER ACTIVATION. FAILURE IS ATTRIBUTED TO AN UNSOLDED LEAD.							
CORRECTIVE ACTION-IN REPLY TO BAR LV-AB-22-8142 THE VENDOR STATED THAT SOLDER OPERATOR CLASSES HAVE BEEN CONDUCTED. ALL OPERATORS AND INSPECTORS ARE NOW CERTIFIED TO NAFPC-PROC 130 B. QA SURVEILLANCE INSPECTION IS PERFORMED ON FINAL CALIBRATION AND ADJUSTMENT.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOTT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOTT-SQUARE-A/B	27-3748 CHOKE-TRANSFORMER TYPE	UTP-PET 27-04188-1	840928	60/C	YES A.C. ELECTRONICS NO CS	991999
FAILURE MODE-OUT OF TOLERANCE. OUT OF TOLERANCE MEASUREMENTS WERE OBTAINED DURING INDUCTION TEST ON TWO SPECIMENS, LOT 87 AND LOT 89. BOTH BELOW REQUIRED VALUE. ALSO, INSERTS BEG/1 TO PULL OUT BELOW REQUIRED VALUE OF 8.7 INCH POU (LOT 87 AND LOT 89) BOTH BELOW REQUIRED VALUE. ALSO, INSERTS BEG/1 TO PULL OUT BELOW REQUIRED VALUE OF 8.7 INCH POU (LOT 87 AND LOT 89) BOTH BELOW REQUIRED VALUE. THIS WAS CAUSED BY (1) PROCEDURES FOR INSTALLATION OF THE INSERT NOT PROPERLY FOLLOWED, (2) THE CORE MATERIAL USED FOR THE CHOKE FILTERS WAS DEFECTIVE.						
CORRECTIVE ACTION-LOTS 87 AND 89 WERE REJECTED TO VENDOR. ALL UNITS OF LOT NUMBERS 71 AND 72 WERE SUBJECTED TO 100 PERCENT INSERT STRENGTH TEST. ECP 7888 WAS WORKED TO REPLACE THIS VENDOR FOR THIS PART NO DURING INTERIM. SURVEY 133-64 SUFFICED FOR RETROFIT OF THREE VEHICLES AND 100 PERCENT SURVEILLANCE BY 60/C DOUBLE STAMPED PARTS. SURVEY 133-64 WAS ISSUED FOR RECOVERING PARTS FROM FACTORY. REF. FR-654-2-410.						
AUTOPLOTT-SQUARE-A/B	27-3748 CHOKE-TRANSFORMER TYPE	UTP-PET 27-04188-1	840928	60/C	YES A.C. ELECTRONICS NO CS	991999
FAILURE MODE-FAIL DURING OPERATION. DURING PET LOT 88 TESTING, THE WINDING CONTINUITY WAS OPEN FOLLOWING IMMERSION TESTING, PARA. 4.7 SUSPECT WINDING BECAME OPEN DURING THE PRECEDING THERMAL SHOCK TEST, AND THAT CHOKE FILTERS USED IN CORE MATERIAL WERE DEFECTIVE.						
CORRECTIVE ACTION-LOT 88 WAS REJECTED TO VENDOR. ECP 7888 WAS WORKED TO REPLACE THIS VENDOR FOR THIS PART NO. DURING INTERIM. SURVEY 133-64 SUFFICED FOR RETROFIT OF THREE VEHICLES AND 100 PERCENT SURVEILLANCE BY 60/C DOUBLE STAMPED PARTS. SURVEY 133-64 WAS ISSUED FOR RECOVERING PARTS FROM FACTORY. REF. FR-654-2-410.						
AUTOPLOTT-SQUARE-A/B	TR27-3711 TRANSFORMER	UTP-PET 27-04184-1	840921	60/C	YES THERMADOR NO TCS-25 PLUS 45	991479
FAILURE MODE-STRUCTURAL. DURING INSERT STRENGTH TEST, PARA. 4.12, ONE OF INSERTS BEGAN TO ROTATE WHEN TORQUED AT A VALUE OF 1.8 INCH POUNDS. THE OTHER INSERT COULD NOT BE ACCURATELY CHECKED BECAUSE THE SCREW USED FOR TEST WAS BROKEN OFF AND THE STUD COULD NOT BE REMOVED WITHOUT DAMAGING THE INSERT. THIS INSERT WAS TORQUED TO 3.0 INCH POUNDS WHEN THE SCREW BROKE. 4.7 INCH POUNDS MINIMUM TORQUE VALUE IS SPEC. REQUIREMENT. CAUSE NOT DETERMINED BUT SUSPECT INSERTS WERE CONTAMINATED.						
CORRECTIVE ACTION-SURVEY INSTRUCTIONS NO. 123-64 RETURNED ALL UNITS ASSOCIATED WITH LOTS 26, 27, AND 28. ALL UNITS WERE CHECKED FOR INSERT STRENGTH AND ALL PASSED. ALL LOTS 26, 27, AND 28 WERE RELEASED TO PRODUCTION. CORR 3363 TO VENDOR TO INSURE THAT INSERTS DO NOT BECOME CONTAMINATED. REF. 654-2-401.						
AUTOPLOTT-SQUARE-A/B	TR27-3711 TRANSFORMER	UTP-PET 27-04184-1	840918	60/C	YES THERMADOR NO TCS-23145	
FAILURE MODE-OUT OF SPECIFICATION. DURING INSERT STRENGTH TEST, PARA. 4.12 ONE INSERT PULLED OUT AT APPROXIMATELY 4 INCH POUNDS AND THE OTHER INSERT BEGAN TO PULL OUT AT APPROXIMATELY THREE INCH POUNDS DURING THE INSERT STRENGTH TEST. 4.7 INCH POUNDS MINIMUM TORQUE VALUE IS SPEC. REQUIREMENT. CAUSE NOT DETERMINED BUT SUSPECT INSERTS WERE CONTAMINATED DURING MANUFACTURE PROCESS.						

19 JUN 1966

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPLOTT SYSTEM-A:880822

SYSTEM SUB-SYSTEM	TEST-REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITZ TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
	CORRECTIVE ACTION-SURVEY INSTRUCTIONS NO 123-64 RETURNED ALL UNITS ASSOCIATED WITH LOTS 26, 27, AND 28. THESE UNITS WERE CHECKED FOR INSERT STRENGTH AND ALL PASSED. ALL LOTS 26, 27, AND 28 WERE RELEASED TO PRODUCTION. CARR 5963-TO VENDOR TO INSURE THAT INSERTS DO NOT BECOME CONTAMINATED. REF. 834-2-101.					
AUTOPLOTT-SQUARE-A/B	FR27-3692 CHOKE-TRANSFORMER TYPE	UTP-PET 27-04150-1	640911	50/C	YES A.C. ELECTRONICS NO CS	AC3477
	FAILURE MODE- FAIL DURING OPERATION. DURING PET TEST OF LOT 20, DURING IMMERSION TEST, PARA. 4.7, SEVERAL AIR BUBBLES WERE OBSERVED COMING FROM A SMALL CRACK ON ONE SIDE OF THE TEST SPECIMEN DURING EACH CYCLE OF THE IMMERSION TEST. THE CRACK WAS APPROXIMATELY 1/8 INCH LONG. THE FRACTURE IS BELIEVED TO HAVE OCCURRED DURING THE THERMAL CYCLING TEST.					
	CORRECTIVE ACTION-ECF 7685 WORKED TO REPLACE THIS VENDOR FOR THIS PART NO DURING INTERIM. SURVEY 133-64 SUFFICED FOR RETROFIT OF THREE VEHICLES AND 100 PERCENT SURVEILLANCE BY 50/C DOUBLE STAMPED PARTS. SURVEY INSTRUCTION 121-64 WAS ISSUED TO REJECT ALL PARTS OF LOT 20 NOT INSTALLED ON CIRCUIT BOARDS. REF. FR 834-2-399.					
AUTOPLOTT-SQUARE-A/B	FR27A3763 TRANSFORMER	UTP-PET 27-04159-1	640909	50/C	YES A.C. ELECTRONICS NO CS	AC3478
	FAILURE MODE-OUT OF TOLERANCE. DURING FINAL TEST OF PET LOTS 25 AND 26, INTERNAL INSULATION REVEALED THE FOLLOWING DISCREPANCIES. ONE SPECIMEN HAD Voids IN POTTING COMPOUND AND THE OTHER SPECIMEN HAD PION IMPREGNATION OF WINDING. THIS WAS CAUSED BY MANUFACTURING PROCEDURES NOT FOLLOWED CORRECTLY BY VENDOR.					
	CORRECTIVE ACTION-SURVEY INSTRUCTIONS 120-64 WERE ISSUED TO REJECT TO VENDOR ALL PARTS OF LOTS 25 AND 26 NOT INSTALLED ON CIRCUIT BOARDS. ECF 7681 WORKED TO REPLACE THIS VENDOR FOR THIS PART NO. REF. FR-834-2-397.					
AUTOPLOTT-SQUARE-A/B	A1-410-01-243	COMPOSITE-FRD/DWL	8450	A1	YES	
	FAILURE MODE- FAIL TO OPERATE AT PRESCRIBED TIME. BOOSTER NO. 1 ENGINE RESPONDED TO A ROLL PROGRAM INPUT 0.8 SECOND AFTER BOOSTER NO. 2 (INSUFFICIENT INFORMATION GIVEN TO COMPLETE THIS FORM).		840903		NO	
	SYSTEM EFFECT-OPERATION STARTS TOO LATE.					
	VEHICLE EFFECT-COMPOSITE DELAYED.					
	CORRECTIVE ACTION-UNKNOWN (SECOND LOOP TEST WAS 601).					

19 JUN 1966

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B	PR27A3701 TRANSFORMER	UTP-PET 27-04182-1	640827	60/C	YES A.C. ELECTRONIC NO CS	092027	
FAILURE MODE-OUT OF TOLERANCE. DURING INSULATION RESISTANCE TEST OF PARAGRAPH 4.4, THE TOLERANCE IS 10K MEGOHMS, MINIMUM AS A REQUIREMENT-OUT OF TOLERANCE WAS MEASURED AT PIN 1-2 TO MOUNTING AS 7.2 K MEGOHMS AND ALSO PINS 3-4-5 TO MOUNTING AS 7.6K MEGOHMS CAUSE FOR LOW RESISTANCE NOT KNOWN.							
CORRECTIVE ACTION-TESTING STOPPED. LOTS 45, 46, AND THIS LOT 47 SURVEYED BY SURVEY INSTRUCTIONS NO. 115-64 AND PART 5 REJECTED TO THE VENDOR. LOT 46 REJECTED FOR ASSOCIATION WITH LOTS 45 AND 47. ALSO ECP 7866 WORKED TO REPLACE VENDOR FOR THIS PART NO. CARR NO. 5536 WAS SENT TO VENDOR. REF. FR 854-2-394A.							
AUTOPILOT-SQUARE-A/B	PR27A3701 TRANSFORMER	UTP-PET 27-04182-1	640824	60/C	YES A.C. ELECTRONIC NO CS	092028	
FAILURE MODE-STRUCTURAL. DURING IMMERSION TEST, PARA 4.8, THERE WERE SMALL BUBBLES FLOWING FROM THE BOTTOM OF THE TEST SPECIMEN DURING THE FIRST 15 MINUTE NOT BATH. AN EXAMINATION DISCLOSED A SMALL HOLE APPROXIMATELY 0.01 INCHES DIAMETER ON THE BOTTOM OF THE TEST SPECIMEN. CAUSED BY POTTING PROCEDURES AT VENDORS FACILITY NOT BEING FOLLOWED.							
CORRECTIVE ACTION-TESTING STOPPED. LOTS 46, 47 AND THIS LOT 45 SURVEYED BY SURVEY INSTRUCTIONS NO. 115-64 AND PART 5 REJECTED TO THE VENDOR. LOT 46 REJECTED FOR ASSOCIATION WITH LOTS 45 AND 47. ALSO ECP 7866 WORKED TO REPLACE THIS VENDOR FOR THIS PART NO. CARR NO. 5536 WAS SENT TO VENDOR. REF. FR 854-2-394A.							
AUTOPILOT-SQUARE-A/B	27A3710 TRANSFORMER	UTP-PET 27-04182-1	640807	60/C	YES A.C. ELECTRONIC NO CS	092029	
FAILURE MODE-OUT OF TOLERANCE. DURING PET LOT NUMBER 64 TEST DURING INSERT STRENGTH TEST, PARA. 4.10, THE TEST SPECIMENS INSERT BEGAN TO PULL LOOSE WITH A TORQUE OF 8.0 INCH POUNDS. REQUIRED TORQUE VALUE IS 9.7 INCH POUNDS MINIMUM. PROBABLE CAUSES DUE TO DEFECTIVE POTTING MATERIAL AND/OR THE POTTING PROCEDURES WERE NOT FOLLOWED.							
CORRECTIVE ACTION- ECP 7866 WORKED TO REPLACE THIS ITEM VENDOR. ALL UNITS OF LOT 64 WERE SUBJECTED TO INSERT STRENGTH TEST. CARR NO. 5489 WAS SENT TO VENDOR FOR CORRECTIVE ACTION. REF. FR 854-2-410.							
AUTOPILOT-SQUARE-A/B	64083-001-18/PC-CO-01-0508-007 COMPOSITE-FACTORY	1910 640750	NO	NO	NO	092030	
FAILURE MODE-FAIL DURING OPERATION-NOISE AND ERRATIC OPERATION WAS INDICATED ON BOATER 2 PITCH AND VERNIER 2 YAW FEEDBACK DATA DURING THE TEST. PROBLEM DUE TO A FAULTY SAE RECORDER.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE RETEST WAS REQUIRED.							
CORRECTIVE ACTION-THE (6401) RECORDER AND ASSOCIATED PREAMPLIFIERS WERE REPLACED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B	ACU3-001-19/FCCO-01-0302-007 RELAY	COMPOSITE-FACTORY	131D 640730	FACTORY	NO NO		002376
FAILURE MODE-FAIL TO OPERATE. NO OUTPUT WAS EVIDENT FROM THE VERNIER & PITCH FEEDBACK TRANSDUCER DUE TO AN OPEN CUM TACT P-3 OF DYNAMIC CALIBRATE RELAY K418.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. A SECOND COMPOSITE TEST WAS PERFORMED DURING WHICH VERNIER NUMBER 2 PITCH WAS SATISFACTORY.							
CORRECTIVE ACTION-6SE RELAY K418 WAS REPLACED.							
AUTOPLOT-SQUARE-A/B	27A3824 TRANSFORMER	UTP-PET 27-04180-3	640716	60/C	YES A.C. ELECTRONIC NO CS		002376
FAILURE MODE-STRUCTURAL. FOLLOWING IMMERSION TEST, PARA. 4-8, A CRACK WAS FOUND ON THE BOTTOM FACE OF THE TRANSFORMER (TERMINAL SIDE). TEST UNIT WAS FROM LOT 80.							
CORRECTIVE ACTION-PET LOT NO REJECTED TO VENDOR. ECP 7868 ELIMINATES THIS VENDOR AS SUPPLIER OF THIS PART. REF. FR 834-2-345.							
AUTOPLOT-SQUARE-A/B	ACU3-001-14/FC-CO-01-0302-008 AMPLIFIER	COMPOSITE-FACTORY	1360 640313		NO NO		002313
FAILURE MODE-OUT OF TOLERANCE. THE BOOSTER NO. 1 PITCH TORQUING GAINS WERE EXCESSIVE, DUE TO IMPROPER SETUP OF THE 6SE SIGNAL.							
SYSTEM EFFECT-OPERATION TO HIGH.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. PARTIAL COMPOSITE RETEST WAS REQUIRED.							
CORRECTIVE ACTION-THE AGE TORQUING POTENTIOMETER WAS RECALIBRATED.							
AUTOPLOT-SQUARE-A/B	99A3187 TRANSFORMER	UTP-PET 27-04394-1	640403	60/C	YES THERMADOR NO TCS-20100		002393
FAILURE MODE-STRUCTURAL. AFTER THE THERMAL SHOCK TEST ONE TEST SPECIMEN HAD SEVERAL SMALL CRACKS ALONG THE SIDE BY TERMINALS 3, 4, AND 5. THE OTHER OF TWO SPECIMENS AFTER THERMAL SHOCK TEST HAD A SMALL CRACK ALONG THE SIDE BY TERMINAL 1 AND 2. THE CAUSE OF THIS FAILURE IS UNKNOWN, ALTHOUGH POTTING MATERIAL ASSUMED DEFECTIVE DUE TO POOR POTTING TECHNIQUE.							
CORRECTIVE ACTION-LOT 1 RETURNED TO VENDOR. VENDOR HAD REVIEWED AND REVISED HIS POTTING PROCEDURES AND ON BASIS OF PET LOT 2 PASSING TESTS, THE VENDORS PRESENT POTTING PROCEDURES ARE ADEQUATE. REF. FR 834-2-1011A.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B	27-3230 TRANSFORMER	UTP-PET 27-04175-1	640383	60/C	YES NO	YES CAL. MAG. CORP 30C708	092025
FAILURE MODE-OUT OF TOLERANCE. TEST SPECIMEN REPRESENTING LOT 11 DURING VISUAL INSPECTION, PARA. 4.1, HAD APPEARANCE OF POOR WORKMANSHIP. THE POTTING AROUND BOTH INSERTS APPEARED TO BE INCOMPLETE.							
CORRECTIVE ACTION-THE VENDOR WAS CONTACTED BY VCAR 6340-64 AND REPLIED THAT THE CAUSE OF THE FAILURE WAS PROBABLY FROTHERING OF THE EPOXY MOLDING COMPOUND, THEREBY CAUSING VERY SMALL VOIDS AROUND INSERTS AND IN POTTING MATERIAL. THE VENDOR STATED THAT THE MOLDING MATERIAL WILL BE GIVEN EXTRA VACUUM CYCLING BEFORE BEING INTRODUCED TO MOLDS. REF. FR 634-2-238 SUPPLEMENT A.							
AUTOPILOT-SQUARE-A/B	27-3348 TRANSFORMER	UTP-PET 27-01307-1	640319	60/C	YES NO	CAL. MAG. 4C952	091699
FAILURE MODE-OUT OF TOLERANCE. CASE SIDE EDGES OF TEST SPECIMEN ARE SPECIFIED AS 0.13 PLUS 0.03 MINUS 0.03 INCHES AND NO WERE MEASURED AS 0.078 INCHES. ALSO, IMPREGNATION OF WINDING WAS INCOMPLETE BY ABOUT 80 PERCENT. INCOMPLETE IMPREGNATION WAS DUE TO TIGHT WINDING AND SEALING EFFECT OF MYLAR TAPE.							
CORRECTIVE ACTION-VENDOR WAS INFORMED OF THE DISCREPANCIES AND REQUESTED TO TAKE APPROPRIATE ACTION ON FUTURE PRODUCTION. VENDOR REPLIED BY STATING, BOBBING WITH HOLES OR SLOTS WILL BE USED IF PRACTICAL. IN SOME CASES, HOLES WEAKEN BOBBIN WALL AND MAKE MOLDING LAMINATION GAP IMPOSSIBLE. MYLAR TAPE NARROWER THAN THE BOBBIN HEIGHT WILL BE USED WHERE POSSIBLE IF UNIT IS NOT TOO SMALL. REF. 634-2-213.							
AUTOPILOT-SQUARE-A/2	27-3368 TRANSFORMER	UTP-PET 27-04166-1	640311	60/C	YES NO	THERMADOR TCS-70043	092010
FAILURE MODE-STRUCTURAL. DURING VISUAL INSPECTION FOLLOWING THERMAL SHOCK TEST, PARA.4.7, TEST SPECIMEN HAD A SMALL WIDTH CRACK APPROXIMATELY 1-INCH IN LENGTH ON THE SIDE OF THE BODY DIRECTLY THROUGH THE VENDOR NAME.							
CORRECTIVE ACTION-PET LOT NO. 16 REJECTED TO VENDOR. A STUDY OF TEST REQUIREMENTS WAS MADE TO DETERMINE THE FEASIBILITY OF REDUCING THERMAL SHOCK REQUIREMENTS BUT STUDY RESULTED IN NO CHANGE. REF. FR 634-2-214A.							
AUTOPILOT-SQUARE-A/B	27-3288 TRANSFORMER	UTP-PET 27-04335-3	640308	60/C	YES NO	TRANSONIC 132314	092379
FAILURE MODE-OPEN (ELECT.). DURING DIELECTRIC STRENGTH TEST, THERE WAS AN INSTANTANEOUS BREAKDOWN BETWEEN THE SECONDARY WINDING AND THE SHELL. THE D.C. RESISTANCE WAS APPROXIMATELY 500 OHMS. SPECIFICATION REQUIREMENT IS THAT THE SPECIMEN SHALL WITH STAND A POTENTIAL OF 50VMS AT 60 CPS FOR NOT LESS THAN 5 SEC WITHOUT BREAKDOWN, PUNCTURE OF INSULATION, OR ARCING. CAUSE UNKNOWN							
CORRECTIVE ACTION-LOT 9 PA178 MANUFACTURED AFTER MARCH 1963 WERE REJECTED AND RETURNED TO VENDOR FOR REWORK. VENDOR ALSO TO CORRECT FAULTY QUALITY CONTROL PROCEDURES. REF. FR-634-2-193 A.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B	27-3288 TRANSFORMER	UTP-PET 27-04399-3	640302	60/C	YES NO	TRANSONIC TS-2314
<p>FAILURE MODE-STRUCTURAL. DURING IMMERSION TEST BUBBLES WERE OBSERVED COMING FROM LOCATION BETWEEN PIN A AND THE SHELL OF WJ2. BUBBLES WERE APPROXIMATELY 1/8 INCH DIAMETER AND OCCURRED AT 10 SECOND INTERVALS FOR 10 MINUTES BEFORE REMOVAL. THE CAUSE OF THIS DISCREPANCY IS UNKNOWN.</p>						
<p>CORRECTIVE ACTION-LOT 9 PARTS MANUFACTURED AFTER MARCH 1963 WERE REJECTED AND RETURNED TO VENDOR FOR REMEDY. VENDOR ALSO TO CORRECT FAULTY QUALITY CONTROL PROCEDURES. REF. PR-654-2-193A.</p>						
AUTOPLOT-SQUARE-A/B	27-3288 TRANSFORMER	UTP-PET 27-04399-3	640221	60/C	YES NO	TRANSONIC TS-2314
<p>FAILURE MODE-OUT OF TOLERANCE. EXCITATION CURRENT RECORDED FOR THE TRANSFORMER WAS 22 MA. SPECIFICATION TOLERANCE IS 20 MA MAXIMUM. THE CAUSE OF THIS DISCREPANCY IS UNKNOWN.</p>						
<p>CORRECTIVE ACTION-LOT 9 PARTS MANUFACTURED AFTER MARCH 1963 WERE REJECTED AND RETURNED TO VENDOR FOR REMEDY. VENDOR ALSO TO CORRECT FAULTY QUALITY CONTROL PROCEDURES. REF. PR-654-2-193 A.</p>						
AUTOPLOT-SQUARE-A/B	89-3187 TRANSFORMER	UTP-PET 27-04399-1	640213	60/C	YES NO	THEMADOR TCS-EDUW
<p>FAILURE MODE-STRUCTURAL. DURING THERMAL SHOCK TEST THE TEST SPECIMEN CRACKED ABOUT 0.25 INCHES DOWN FROM AN INSERT. CAUSE OF FAILURE UNKNOWN ALTHOUGH POTTING MATERIAL ASSUMED DEFECTIVE DUE TO POOR POTTING TECHNIQUE.</p>						
<p>CORRECTIVE ACTION-TWO OTHER UNITS SELECTED FROM LOT 1 AND SUBJECTED TO PET ONLY. QUALITY ASSURANCE NEGOTIATED WITH VENDOR TO IMPROVE POTTING TECHNIQUES. REF. PR-654-2-181.</p>						
AUTOPLOT-SQUARE-A/B	89C3182 TRANSFORMER	UTP-QUAL/PPT 27-04399-1	640118	60/C	YES NO	TRANSONIC TS-3021
<p>FAILURE MODE-STRUCTURAL. THERE WAS LEAKAGE OF FILLING MATERIAL FROM A CRACK IN THE TEST SPECIMEN DURING THE OVERLOAD TEST. THE CRACK WAS PRESENT AFTER THE THERMAL SHOCK TEST, BUT TO A MUCH LESSER DEGREE. THIS FAILURE WAS ATTRIBUTED TO VENDOR NOT USING PROPER POTTING MATERIALS AND TECHNIQUES.</p>						
<p>CORRECTIVE ACTION-IT WAS RECOMMENDED TO PLY CHIEF ENGINEERS WAF REVIEW COMMITTEE TO REPLACE THE UNQUALIFIED PART 27-04399-1 WITH A QUALIFIED PART 27-04177 B. THIS WAS DISAPPROVED BY COMMITTEE. A DECISION WAS MADE TO TEST TO SYRO TE TEMPERATURES (-5 DEGREES TO +180 DEGREES F) RATHER THAN MIL-T-87A. REF. PR-654-2-119-SUPPLEMENT A.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	81% TIM. DIP	PST DIP	VENDOR NAME VENDOR PART NO
AUTOPLOTT-SQUARE-A/B	LV-90-04-4681P AMPLIFIER-CAPACITOR	FAR 27-41849-3	1990 640109	FACTORY	YES NO	993038
FAILURE MODE-ERRATIC OPERATION. VERNIER 1, YAW/ROLL OUTPUT WAS ERRATIC DURING VIBRATION. CAUSE DUE TO AN INTERMITTENTLY OPEN-CIRCUITED TANTALUM CAPACITOR. THE TANTALUM SLUG IN THIS CAPACITOR WAS NOT FIRMLY SOLDERED TO THE CAPACITOR CASE.						
CORRECTIVE ACTION-CONFIRMED. IN REPLY TO BAR LV-99-04-3888 A SURVEY INSTRUCTION 55-64 WAS ISSUED ON DATE 640501 TO LOCATE AND AUTHORITY SCRAPPING ALL TEXAS INSTRUMENT SYN TANTALUM CAPACITORS OLDER THAN 1962. THIS WAS ACCOMPLISHED. A RECOMMENDATION, STILL IN THE PROPOSAL STAGE, WAS MADE TO REPLACE THE COMMERCIAL TANTALUM CAPACITOR WITH THE MILITARY APPROVED MIL-C-20485A; UNIT.						
AUTOPLOTT-SQUARE-A/B	99A0091-3 TRANSFORMER	UTP-PET 27-04184-1	640103	50/C	YES NO	993054
FAILURE MODE-STRUCTURAL. FOLLOWING THERMAL SHOCK DURING WINDING CONTINUITY TEST, AN OPEN SECONDARY WINDING (3-4 TER MINALS) WAS INDICATED ON ONE SPECIMEN OUT OF SIX TESTED SIMULTANEOUSLY. CAUSED BY PHYSICAL BREAKAGE OF COIL LEAD WIRE (INTERNAL) PROBABLY DUE TO STRESSES IMPOSED BY THERMAL SHOCK TEST.						
CORRECTIVE ACTION-TESTING STOPPED TO QUALIFY THIS VENDOR FOR THIS PART AND NO FURTHER PPT TESTING PLANNED ON THIS VENDOR FOR THIS PART NUMBER SINCE TWO OTHER VENDORS PLUS 50/C ARE NOW QUALIFIED PRODUCERS OF THIS PART. REF. 954-2-11 B.						
AUTOPLOTT-SQUARE-A/B	99-3119 TRANSFORMER	UTP-PET 69-01014-1	631230	50/C	YES NO	993068
FAILURE MODE-STRUCTURAL. DURING THERMAL SHOCK TEST A SLIGHT BULGE AND TWO PERPENDICULAR CRACKS ABOUT 1/4 INCH IN LENGTH WERE NOTED. THE TEST SPECIMEN HAD PREVIOUSLY LEAKED BUBBLES IN THE AREA OF THE BULGE. THIS WAS CAUSED BY THE COIL NOT BEING CENTERED IN THE MOLD AND THE POTTING MATERIAL NOT COMPLETELY MIXED OR CONTAMINATED.						
CORRECTIVE ACTION-PRODUCTION PERSONNEL HAVE BEEN INSTRUCTED IN THE PROPER MANNER OF POTTING. AND QUALITY CONTROL PERSONNEL ADVISED ON PROPER METHODS FOR TESTING SEALING. PRODUCTION PERSONNEL HAVE ALSO BEEN INSTRUCTED TO ASSURE THAT COILS WILL BE PROPERLY CENTERED SO THAT POTTING WILL BE EVENLY DISTRIBUTED AROUND THE COMPONENT. REF. PR 954-2-102.						
AUTOPLOTT-SQUARE-A/B	99C3192 TRANSFORMER	UTP-WUAL/PPT 27-04396-1	631210	50/C	YES NO	993081
FAILURE MODE-STRUCTURAL. DURING THERMAL SHOCK TEST, PARA. 4.12, THE CASES WERE CRACKED ON FIVE TEST SPECIMENS. THIS FAILURE WAS ATTRIBUTED TO IMPROPER VENDOR POTTING MATERIALS AND TECHNIQUES.						
CORRECTIVE ACTION-IT WAS RECOMMENDED TO SLY CHIEF ENGINEERS WAP REVIEW TO REPLACE THE UNQUALIFIED 27-04396-1 WITH A						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
	QUALIFIED 27-04173-3. THIS WAS DISAPPROVED BY MAP REVIEW COMMITTEE. A DECISION MADE WAS TO TEST UNITS TO CYRO TEMPE NATURES (MINUS 5 DEG F TO PLUS 160 DEG F) RATHER THAN MIL-T-27A. REF. FR-634-2-119 BU A.						992392
AUTOPILOT-SQUARE-A/B	89C-3182 TRANSFORMER	UTP-DUAL/PPT 27-04398-1	831210	60/C	YES NO	TRANSONIC TS-3021	992389
	FAILURE MODE-OUT OF TOLERANCE. TEST SPECIMEN DURING EXCITATION CURRENT TEST, PARA. 4.8.2.1, AND NO-LOAD EXCITATION CURRENT READING OF 119 MA. THE MAXIMUM ALLOWED IS 100 MA. CAUSE UNKNOWN.						
	CORRECTIVE ACTION-TESTING CONTINUED. SPECIMEN FAILED AT A LATER DATE 12-18-65 AND DISPOSITION WAS MADE AS REFERENCE D BY FR-634-2-119. REF. C7C7H ON TEST REQUEST 89C-3182 12-10-63.						
AUTOPILOT-SQUARE-A/B	FR-27-3071 TRANSFORMER	UTP-PET 27-04161-1	831121	60/C	YES A.C. ELECTRONIC NO CS	AC3478	991293
	FAILURE MODE-STRUCTURAL. DURING TERMINAL STRENGTH TEST, PARA. 4.9, A PRIMARY TERMINAL PIN BECAME LOOSE AND THE PRIM ARY WINDING BECAME OPEN. THIS WAS CAUSED BY MOVEMENT OF THE TERMINAL DURING INSERT STRENGTH TEST-OF LOT NO-19.						
	CORRECTIVE ACTION-SIX UNITS FOUND IN STOCK FROM LOT 19, REPRESENTING ALL OF SUSPECTED UNITS WITHIN S/N RANGE OF 308 -0873 TO 308-0844, WERE SUBJECTED TO TERMINAL STRENGTH TESTS. REF. FR-634-2-087.						
AUTOPILOT-SQUARE-A/B	FR-27-3143 TRANSFORMER	UTP-PET 27-04162-1	831113	60/C	YES A.C. ELECTRONIC NO CS	AC3478	991896
	FAILURE MODE-OUT OF TOLERANCE. DURING EXTERNAL VISUAL/MECHANICAL INSPECTION OF LOT 43, TEST SPECIMEN HAD POTTING MA TERIAL SEPARATED FROM THE CASE AT THREE OF THE FOUR CORNERS. THIS WAS CAUSED BY EITHER- (1) INTERNAL CASE SIDES NOT P ROPERLY SANDBLASTED, (2) UNIT NOT CLEANED PROPERLY, OR (3) IMPROPER HANDLING AFTER CLEANING, ALLOWING CONTAMINATION OF THE SIDES.						
	CORRECTIVE ACTION-A SECOND TEST SPECIMEN WAS PLACED INTO TEST. ALL UNITS BY THIS VENDOR PET LOT 43 ARE TO BE HELD P ENDING COMPLETION OF PET TESTING. PET FREQUENCY INCREASED TO 1/20 FOR LOTS 43, 44, AND 45 ONLY. ECP 7889 WAS WORKED TO REPLACE THE VENDOR OF THIS PART NO. VENDOR ALSO CONTACTED REQUESTING CORRECTIVE ACTION. REF. 634-2-035 SUPPLEMENT A.						
AUTOPILOT-SQUARE-A/B	89-3149 TRANSFORMER	UTP-PET 27-04398-1	831106	60/C	YES NO	TRANSONIC TS-3021	
	FAILURE MODE-STRUCTURAL. ONE TEST SPECIMEN DEVELOPED A CRACK ON ONE END DURING THE OVERLOAD TEST. THE CRACK WAS ALSO UT 1/4 INCHES BELOW THE THREAD INSERT AND ABOUT 1/8 INCHES LONG. TWO TEST SPECIMENS FAILED THE INSERT STRENGTH TEST.						
	CORRECTIVE ACTION-MEETING SCHEDULED FOR 11-7-69 TO DETERMINE DISPOSITION ON FAILURES, TO BE ATTENDED BY QUALITY ASS						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	URANCE, DESIGN ENGINEERING, AND PROJECT OFFICE. TEST CONDUCTED WAS CONSIDERED A SPECIAL PET AND NOT REPRESENTATIVE OF A LOT. REF. CTCTN ON TEST REQUEST 89-3149 ON 11-8-83.						892388
AUTOPILOT-SQUARE-A/B	89C-2914 TRANSFORMER	UTP-QUAL/PPT E: 043986-1	831028	60/C	YES NO	TRANSONIC TS-3021	892387
	FAILURE MODE-OUT OF TOLERANCE. DURING INSERT STRENGTH TEST, ONE TEST SPECIMEN HAD INSERT NO. 2 PULLED OUT WITH A SEVEN INCH POUND FORCE APPLIED. THE INSERT SHOULD HOLD A MINIMUM OF 8.7 INCH POUNDS.						
	CORRECTIVE ACTION-THREE ADDITIONAL UNITS WERE DRAWN FROM STOCK AND PLACED IN SPECIAL PET TESTING TO ESTABLISH A CONFIDENCE LEVEL FOR PARTS BY SUBJECTING THEM TO THERMAL SHOCK, IMMERSION, OVERLOAD, AND INSERT TORQUEING TESTS. PPT TO BE RETESTED WITH SEVEN NEW SAMPLES. REF. FR-834-E-008 AND SUPPLEMENT A.						
AUTOPILOT-SQUARE-A/B	89C-2914 TRANSFORMER	UTP-QUAL/PPT E: 043986-1	831019	60/C	YES NO	TRANSONIC TS-3021	892337
	FAILURE MODE-OUT OF TOLERANCE. DURING DIELECTRIC STRENGTH TEST ON WINDING 1-2 TO RETAL PLATE, THE OUT PUT VOLTAGE JUMPED ABRUPTLY AFTER REACHING 300V RMS. THERE SHOULD BE NO BREAKDOWN AT 450 V RMS. ALSO WINDING-TO-WINDING RESISTANCE WAS ONLY 350 K OHMS. THIS WAS CAUSED BY A HIGH VOLTAGE LEAKAGE PATH DUE TO POOR WORKMANSHIP. FABRICATION TECHNIQUE 9, AND 9C.						
	CORRECTIVE ACTION-THREE ADDITIONAL UNITS WERE DRAWN FROM STOCK AND PLACED IN SPECIAL PET TESTING TO ESTABLISH A CONFIDENCE LEVEL FOR PARTS BY SUBJECTING THEM TO THERMAL SHOCK, IMMERSION, OVERLOAD, AND INSERT TORQUEING TESTS. PPT TO BE RETESTED WITH SEVEN NEW SAMPLES. REF. FR-834-E-008 AND SUPPLEMENT A.						
AUTOPILOT-SQUARE-A/B	27-P-3031 REACTOR-TRANSFORMER TYPE	UTP-PET E: 04172-1	831007	60/C	YES NO	CAL. MAG. CORP ACTOS	892019
	FAILURE MODE-STRUCTURAL. A SMALL BUBBLE APPEARED ON THE CASE OF THE UNIT AFTER OVERLOAD TEST, PARA. 4.8.2.2, DURING IMMERSION TEST. NO CAUSE FOR THE APPEARANCE OF THE BUBBLE COULD BE ARRIVED AT, AND NO DETRIMENTAL EFFECTS COULD BE NOTED. IT WAS AGREED THAT THE BUBBLE PROBABLY WAS EMITTED FROM THE PLASTIC BOBBIN.						
	CORRECTIVE ACTION-A MODIFIED PET TEST ON A SECOND UNIT WAS CONDUCTED FOR CONFIDENCE AND DISPOSITION OF THE LOT. THE MODIFIED PET TEST CONSISTING OF IMMERSION AND OVERLOAD WAS CONDUCTED SATISFACTORILY AND THE LOT WAS ACCEPTED. REF. FR-834-E-037.						
AUTOPILOT-SQUARE-A/B	27--3034 THREE PHASE TRANSFORMER	UTP-PET E: 04188-1	831007	60/C	YES NO	A.C. ELECTRONICS AC3483	
	FAILURE MODE-STRUCTURAL. DURING OVERLOAD TEST FOLLOWING IMMERSION, PARA.4.8.2.2, TEST SPECIMEN CASE CRACKED. DIELECTRIC AND CONTINUITY TESTS WERE PERFORMED AND SPECIMEN HAD OPEN PRIMARY WINDINGS. CAUSE OF FAILURE IS UNKNOWN.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE: DIF TIME DIF	SITE DIF TIME DIF	PRI DIF TIME DIF	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-LOT 21 REJECTED TO VENDOR. VENDOR REQUESTED TO MAKE ANALYSIS AND PERFORM CORRECTIVE ACTION. VENDOR INITIATED VAF 27-04188-1-D-001 BUT WAS DISAPPROVED BY 60/C ENGINEERING DESIGN. VENDOR REQUESTED TO BE DROPPED AS A SECOND SOURCE SUPPLIER FOR THIS PART NO. 60/C BUTER PULLED ALL P.O.'S AND REMOVED VENDOR FROM APPROVAL LIST FOR THIS PART NO. ONLY. REF. FR-654-R-038.						998017
AUTOPLOTT-SQUARE-A/B	27-2940 TRANSFORMER	UTP-PET 27-04185-3	630829	60/C	YES A.C. ELECTRONIC NO C8		998028
	FAILURE MODE-STRUCTURAL. DURING PET OF LOT 144, AFTER THERMAL SHOCK TEST, OUTSIDE COATING OF THE SPECIMEN SHOWED EVIDENCE OF BLASTING ON THE SIDE OPPOSITE THE TERMINALS. CAUSE IS UNKNOWN.						
	CORRECTIVE ACTION-TESTING CONTINUED. AN EVALUATION OF THIS CONDITION REVEALED THAT AFTER THE OVERLOAD TEST, WHICH FOLLOWED THE THERMAL SHOCK TEST, THE BULGE WAS NO LONGER EVIDENT AND DID NOT OCCUR THROUGHOUT THE ENTIRE REMAINING TESTS. PROCUREMENT LOT NUMBER, 144, WAS ACCEPTED. REF. MEMO E11-931-10-23-4, DATED 15 FEBRUARY 1964.						
AUTOPLOTT-SQUARE-A/B	69C-17813-3 TRANSFORMER	UTP-QUAL/PPT 27-04395-3	630824	60/C	YES 60/C NO		998384
	FAILURE MODE-STRUCTURAL. AFTER THERMAL SHOCK TEST, FOUR TEST SPECIMENS OUT OF SEVEN HAD LATERAL CRACKS AND HOLES IN THE CASE. DURING THE OVERLOAD TEST, TWO OF THESE FOUR UNITS HAD WINDINGS SHORTED INTERNALLY AND THE CASE SPLIT OPEN DURING THE TEST.						
	CORRECTIVE ACTION-TEST STOPPED. PER CIC 07452, MAP M030434 THE 27-04395-3 TRANSFORMER WAS REPLACED WITH P/N 27-0417 6-1 AND ALL SUBJECT TRANSFORMERS THEN INSTALLED OR PLANNED FOR INSTALLATION ARE TO BE REPLACED WITH THE FULLY QUALIFIED TRANSFORMER WHICH IS USED IN THE E AND F SERIES MISSILES. REF. C1C1M ON TEST REQUEST 69C-17813-3.						
AUTOPLOTT-SQUARE-A/B	SP-A9-04-4314-F ACCELEROMETER, TRANSFORMER	PAR 27-04089-1	263D 630707	FACTORY	YES EDCLIFTE NO 108892		998308
	FAILURE MODE-OUT OF TOLERANCE. ACCELEROMETER HAD NO OUTPUT WHEN 28 VDC TEST INPUT WAS APPLIED. FAILURE WAS CONFIRMED DUE TO MISALIGNED DIFFERENTIAL TRANSFORMER PLUG WITHIN THE SELF-CHECK SOLENOID HOUSING.						
	CORRECTIVE ACTION-VENDOR INITIATED DESIGN IMPROVEMENT OF SELF-TEST SOLENOID AND INCREASED INSPECTION OF ALL ACCELEROMETERS TO INSURE AGAINST FAILURE CAUSED BY STICKING COMPONENTS.						
AUTOPLOTT-SQUARE-A/B	69C17-7-3 TRANSFORMER	UTP-QUAL/PPT 27-04186-1	630424	60/C	YES TRANSCNIC NO 783021		
	FAILURE MODE-STRUCTURAL. AFTER COMPLETION OF THERMAL SHOCK TEST, SIX TEST SPECIMENS SHOWED EVIDENCE OF CRACKING IN VARYING DEGREES ON THE OUTER CASE. CRACKING INCREASED AS A RESULT OF THE IMMERSION TEST ON FOUR OF THE UNITS.						
	CORRECTIVE ACTION-VENDOR SUBMITTED SATISFACTORY CORRECTIVE ACTION WHICH WAS APPROVED ON VAF 27-04398-1-001 ON 8-6-66						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						992396
						992023
3. TEST WAS STOPPED AND P/N IS CONSIDERED ADEQUATE FOR FLIGHT ON LV-3-C AND OTHER LV-3 BOOSTERS. PPT QUALIFICATION TESTING WILL BE SCHEDULED FOR COMPLETION PRIOR TO FIRST FLIGHT OF BLV-3. REF. FR 834-E-008 AND SUPPLEMENT A.						
AUTOPILOT-SQUARE-A/B	89A0091-3 TRANSFORMER	UTP-PET 27-04184-1	830401	60/C	YES APPLIED COMPO NO ENTS AC12175	
FAILURE MODE-OVEN-ELECT. DURING WINDING CONTINUITY CHECK AFTER COMPLETION OF OVERLOAD TEST, PARA. 4.7.14, TWO TEST SPECIMENS SHOWED ONE OPEN SECONDARY WINDING IN EACH TRANSFORMER. FAILURE ANALYSIS CONDUCTED IN THE MAGNETIC COMPONENT LAB WITH THE VENDOR'S COGNIZANCE AND COOPERATION, INDICATED THAT FAILURE WAS DUE TO INTERNAL WIRE BREAKAGE WHICH WAS PROBABLY A RESULT OF THE FABRICATION METHOD.						
CORRECTIVE ACTION-THE VENDOR WAS CONTACTED AND HAS SUBMITTED CORRECTIVE ACTION ON VAF 27-04184-1-VCP-001. THIS ACTION INCORPORATED SLOTTED HOLES ON THE FACE PLATE SO THAT NO STRAIN IS IMPOSED ON THE WIRES DURING THERMAL TESTING. DESIGN APPROVED THE VENDOR ACTION PROPOSAL AND SIX NEW UNITS WILL BE TESTED. REF. FR-854-E-008.						
AUTOPILOT-SQUARE-A/B	89C1787-3 TRANSFORMER	UTP-GUAL/PPT 27-04398-1	830325	60/C	YES TRANSONIC NO TS-3021	992395
FAILURE MODE-STRUCTURAL. DURING SEALING TEST, PARA. 4.3, THE TEST SPECIMEN HAD A CONTINUOUS FLOW OF AIR BUBBLES FROM A SMALL HOLE IN THE POTTING.						
CORRECTIVE ACTION-VENDOR SUBMITTED SATISFACTORY CORRECTIVE ACTION WHICH WAS APPROVED ON UAF 27-04398-1-0-001 ON 8-6-65. TEST CONTINUED. REF. FR-3002 ST AND FR-854-E-009-A.						
AUTOPILOT-SQUARE-A/B	FR 89C4083.1 CHOSE-TRANSFORMER TYPE	UTP-GUAL/PPT 27-04188-1	830307	60/C	YES APPLIED COMPO NO ENTS INC ACT 1325	992305
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TESTING, PARA. 4.1, THE RAISED PORTION (BUTTON) AROUND THE INSERTS WERE MISSING FROM TWO SPECIMENS AND FELL OFF TWO OTHER SPECIMENS DURING HANDLING, CREATING DIMENSIONAL OUT OF TOLERANCES.						
CORRECTIVE ACTION-THE VENDOR WAS CONTACTED ABOUT THE PROBLEM AND WAS TO REPLY IN WRITING. THE RESULTS OF THEIR INVESTIGATION AS TO THE EXACT CAUSE AND THEIR CORRECTIVE ACTION TO BE TAKEN TO PREVENT A RECURRENCE. REF. CTRM NO. 518-3-008.						
AUTOPILOT-SQUARE-A/B	W8E-89/A3-402-00-176	FLIGHT	1780	43/MTR	YES 830131 157 NO	
FAILURE MODE-OUT OF EXPECTED TEST VALUE. A SUBSTAINER PITCH OSCILLATION BEGAN AT 137 SECONDS AT A FREQUENCY OF 1.0 C PS AND DIVERGED SLIGHTLY UNTIL SUBSTAINER CUTOFF, WHEN THE FREQUENCY REACHED 1.8 CPS.						
SYSTEM EFFECT-ERRATIC OPERATION. DURING THE PERIOD OF OSCILLATION THE MAXIMUM PITCH RATE WAS 0.31 DEGREES PER SECOND NO PEAK TO PEAK, WITH CORRESPONDING SUBSTAINER ENGINE MOTION OF 1.85 DEGREE PEAK TO PEAK. ROLL COUPLING MAXIMUM RATE WAS 4.7 DEGREES PER SECOND PEAK TO PEAK WITH VERNIER ENGINE MOTION OF 8.8 DEGREES PER SECOND.						

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VEHICLE EFFECT-NONE.							893494
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B	AOL62-0031/L1-401-00-128	FLIGHT	1280 621111	PALC1-1 88	YES NO		891407
FAILURE MODE-OUT OF EXPECTED TEST VALUE. YAW RATE GYRO SIGNALS LARGER THAN EXPECTED (0.38 DEG/SEC P-P) DURING BOOSTER STAGE AT FREQUENCIES BETWEEN 2.75 AND 3.08 CPS. THE LARGE SIGNALS HAVE BEEN ATTRIBUTED TO THE LONGER AND HEAVIER AGEMA STAGES LOWERING THE FREQUENCY OF THE VEHICLE FIRST BENDING MODE AND SHIFTING FORWARD THE FIRST MODE ANTI-MODE.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. THE LOWER FREQUENCY OF THE FIRST MODE AND THE FORWARD SHIFT OF THE ANTI-MODE, CAUSED DETERIORATION OF THE FIRST MODE AUTOPILOT STABILITY.							
CORRECTIVE ACTION-STARTING WITH 201D, AND CONTINUING THROUGH THE 208 AND 214-3 PROGRAMS, THE GYROS WERE RELOCATED FROM STATION 675 TO STATION 521, AND FINALLY TO STATION 475.							
AUTOPILOT-SQUARE-A/B	A-49-04-3466-F SWITCH 6-DIODE	FAR 27-41000-831	107F 621018	FACTORY	YES NO	YES TRANSITRON	894434
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED 11-E. THE DERIVATIVE FAILED TO CHANGE INTEGRATOR GAIN AT STAGING AS EXPECTED. FAILURE TRACED TO FAULTY SWITCH 6. FAILURE OF SWITCH WAS CAUSED BY A LEAKY ZENER DIODE CR-2 MOUNTED ON CIRCUIT BOARD P/N 27-41385-803.DC LEAKAGE CURRENT OF 20 MICROAMPS OCCURRED. A LEAKAGE OF ONLY 15 MICROAMPS WILL CAUSE SWITCH 6 TO FAIL. CR-2 IS A TRANSITRON SV13 A COMMERCIAL TYPE.							
CORRECTIVE ACTION-BECAUSE PROCURING SPECS DID NOT RESTRICT LEAKAGE CURRENT 50/C ISSUED A NEW SPEC 0-79087 FOR SEMICONDUCTOR DEVICES IN CRITICAL CIRCUIT APPLICATIONS. THIS DOCUMENT COVERS THE GENERAL REQUIREMENTS FOR HIGH RELIABILITY SEMICONDUCTOR DEVICES.							
AUTOPILOT-SQUARE-A/B	DAT94/02-840-13-13 AUTOPILOT	COMPOSITE-FRD/DPL	13F 620920	2	YES NO		897398
FAILURE MODE-FAIL DURING OPERATION.							
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. FAILED AT END OF COMMIT PRIOR TO ENGINE START.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-UNKNOWN.							

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AUTOPILOT-SQUARE-A/B	A-99-04-3315-F RESISTOR ASSEMBLY	FAR 7-41874-S	620713	FACTORY	YES NO	094159
FAILURE MODE-OUT OF TOLERANCE. OUT OF TOLERANCE CONDITION WAS REPORTED FOR TWO RESISTOR ASSEMBLIES SERIAL NO. 472 A NO 473.						
CORRECTIVE ACTION-SUPERVISION IS MAINTAINING CLOSER SURVEILLANCE IN RECEIVING INSPECTION AND MANUFACTURING AREAS. FAILURE NOT CONFIRMED FOR SERIAL NO. 473.						
AUTOPILOT-SQUARE-A/B	A-9L-04-3375F RATE GYRO MICROSYN POTENTIOMETER	FAR 27-41002-825	39F 620623	LINCOLN	YES NO	094694
FAILURE MODE-FAIL DURING OPERATION. NO-60S WERE RECEIVED ON MARCHE CARDS 327, 328, 347 AND 348 (27-98451-3) INDICATING FAULTY ROLL-RATE GYRO. THE GYRO WAS DISASSEMBLED AND A BROKEN WINDING IN THE SIGNAL GENERATOR WAS DISCOVERED. SAME TYPE OF FAILURE OCCURRED ON FAR A-9L-04-3376F.						
CORRECTIVE ACTION-VENDOR HAS INCREASED QUALITY CONTROL PROCEDURES.						
AUTOPILOT-SQUARE-A/B	DA687 CONNECTOR	COMPOSITE-FRD/DPL	110D 620402	1-2	YES NO	096353
FAILURE MODE-OUT OF TOLERANCE ENGINES FAILED TO MULL IN PITCH PLANE-INVESTIGATION REVEALED A FAULTY RECEPTICAL IN UMBILICAL J1001.						
SYSTEM EFFECT-ERRATIC OPERATION ENGINES FAILED TO MULL IN PITCH PLANE RESULTING IN NO-60 LOOP TEST.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-PITCH MULLING SIGNAL REROUTED.						
AUTOPILOT-SQUARE-A/B	AAS2-0041/P6-4CO-02-F1	COMPOSITE-J FACT	104D 620302	ETR	YES YES	092259
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. TELEMEASURED DATA INDICATED A 2 PERCENT IBM OSCILLATION IN THE B1 YAW/ROLL DATA. THIS WAS ALSO OBSERVED ON TEST P6-4CO-01-F1 (REF. AAS2-0040).						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-UNKNOWN.						

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AUTOPLOT-SQUARE-A/B	AE61-0687/LI-201-00-108 STAGING BACKUP ACCELERATION SWITCH 27-04099-1	PLIGHT	108D 811122	1-1 133	YES NO	
<p>FAILURE MODE-PREMATURE OPERATION. BOOSTER STAGING SUBROUTINE WAS INITIATED BY A PREMATURE ACTIVATION OF THE STAGING BACKUP ACCELERATION SWITCH. CAUSE OF MALFUNCTION OF THE SWITCH DUE TO LOW TEMPERATURE ENVIRONMENT. SWITCH IS INSTALLED IN THE LOW TANK AREA.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. ACCELERATION SWITCH, WHICH WAS TO ACTIVATE AT 8.77 \pm AS A BACKUP TO THE GUIDANCE COMMAND, ACTIVATED INSTEAD AT 9.78.</p> <p>VEHICLE EFFECT-PREMATURE BOOSTER ENGINE CUTOFF. STAGING WAS INITIATED 9.1 SECONDS EARLY. THE POSSIBILITY OF EARLY δ ECO HAD BEEN CONSIDERED PRIOR TO FLIGHT. IT WAS DETERMINED THAT STAGING AS EARLY AS BECO ENABLE (126 SECONDS) WOULD HAVE NO ADVERSE EFFECT.</p> <p>CORRECTIVE ACTION-LAB TESTING SHOWED THAT EARLY ACTIVATION WOULD RESULT WHEN THE SWITCH WAS SUBJECTED TO COLD ENVIRONMENT. SWITCH WAS RELOCATED TO THE FUEL TANK AREA.</p>						
AUTOPLOT-SQUARE-A/B	AE61-0007/PC-8CO-02-081	COMPOSITE-FACTORY	ELE 810208	FACTORY NO		
<p>FAILURE MODE-ERRATIC OPERATION-SUSTAINER PITCH FEEDBACK INDICATED AN UNEXPECTED DEFLECTION DURING A SERVO BIAS EXERCISE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. PARTIAL COMPOSITE RETEST REQUIRED.</p> <p>CORRECTIVE ACTION-MONUMENTOUS REPAIRS FAILED TO DISCLOSE THE NATURE OF THE PROBLEM. IT WAS ASSUMED THAT A RECORDER MALFUNCTION CAUSED THE PROBLEM.</p>						
AUTOPLOT-SQUARE-A/B	AL60-0118/P2-4NO-01-80 WARNERS	COMPOSITE-FRD/DPL	80D 800917	12 -4860	YES NO	
<p>FAILURE MODE-FAIL DURING OPERATION. BROKEN SPLICE BETWEEN PLUG 2012 AND P301.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. NO FEEDBACK SIGNAL WAS RECEIVED WHEN THE ENGINES WERE SIMULATED.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. 135 MINUTES HOLD.</p> <p>CORRECTIVE ACTION-RESPICED WIRE.</p>						
AUTOPLOT-SQUARE-A/B	AE60-0611/PC-4CO-03-077 SERVO VALVE	COMPOSITE-FACTORY	77D 800915	ETR NO	YES NO	
<p>FAILURE MODE-OUT OF SPECIFICATION ON TOLERANCE-VERNIER NO. 2 YAW BIAS WAS 8.0 VDC. 3.64 VDC WAS EXPECTED.</p> <p>SYSTEM EFFECT-OPERATION TOO LOW.</p> <p>VEHICLE EFFECT-COUNTDOWN, COMPOSITE DELAYED OR RESCHEDULED. POST COMPOSITE TESTING WAS REQUIRED.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-						
AUTOPILLOT-SQUARE-A/B PLATFORM AND CONTROL	CI-SMO-01-46	COMPOSITE-PRD/DPL	64E 640304	C	YES NO	890445
FAILURE MODE-FAIL DURING OPERATION. THE AZIMUTH GYRO IN N.O.S. FAILED DURING DIFTY TEST DUE TO SHORT IN UMBILICAL 6 DONT.						
SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-REPLACE UMBILICAL.						
AUTOPILLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5117 PROGRAMMER-SWITCH	FAR 99-42001-897	960427	FACTORY	YES 60/C NO	890478
FAILURE MODE-FAIL DURING OPERATION. UNIT WAS REJECTED WHEN DURING PAT VIBRATION SWITCH 4 MALFUNCTIONED. THE REPORTED FAILURE OF THE PROGRAMMER WAS NOT CONFIRMED. HOWEVER, THE MOST PROBABLE CAUSE OF THE FAILURE WAS CONTAMINATION IN THE HARNESS TRAY RESULTING IN AN INTERMITTENT CONNECTION DURING VIBRATION.						
CORRECTIVE ACTION-FACTORY INSPECTION AND PRODUCTION PERSONNEL WITNESSED THE EXAMINATION OF THE HARNESS TRAY AND ARE AWARE OF THE RESULTS OF THIS ANALYSIS.						
AUTOPILLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5122 PROGRAMMER-TRANSISTOR	FAR 99-41001-899	960427	FACTORY	YES 60/C NO	890478
FAILURE MODE-FAIL DURING OPERATION-PROGRAMMER WAS REJECTED DURING PAT WHEN THE CLOCK APPEARED TO STOP RUNNING AFTER 32 SECONDS. FAILURE WAS TRACED TO A FAULTY TRANSISTOR 9-24 ON CIRCUIT BOARD 99-41002-801. THE TRANSISTOR HAD A COLL ECTOR-BASE SHORT CIRCUIT CAUSED BY EXCESSIVE CURRENT DRAIN. CAUSE OF THE EXCESSIVE CURRENT COULD NOT BE FOUND.						
CORRECTIVE ACTION-PRODUCTION AND INSPECTION PERSONNEL WERE INFORMED OF THE RESULTS OF THIS ANALYSIS.						
AUTOPILLOT SQUARE-A/B PROGRAMMER	CT-99-04-283 AUTOPILLOT PROGRAMMER	FAR 99-41001-899	960428	ETR	YES 60/C NO	890478
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. CAUSED BY PHETIBRACER VOLTAGES. SETTING TIME CLOCKS OUT OF SCH EDATE.						
CORRECTIVE ACTION-RECOMMEND REJECTION OF GROUND SUPPORT EQUIPMENT, PROGRAMMER RESET CIRCUITRY, MODIFY 686 LOGIC AND						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTM	VENDOR NAME VENDOR PART NO	
REMOVE UNUSED HIGH POWER SWITCHES IN PROGRAMMER.							990486
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-98-04-3109 PROGRAMMER	FAR 99-42001-697	990426	FACTORY	YES	60/C NO	990488
FAILURE MODE-ERRATIC OPERATION-UNIT WAS REJECTED WHEN A TRANSIENT CONDITION ON THE PITCH SIGNAL LINE WAS NOTED. THE REPORTED FAILURE OF THE PROGRAMMER WAS NOT CONFIRMED. HOWEVER TESTING OF THE PROGRAMMER HARNESS TRAY REVEALED AN ERATIC SOCKET. THE MOST PROBABLE CAUSE OF THE REPORTED FAILURE IS THE CONTAMINATED HARNESS TRAY SOCKET.							
CORRECTIVE ACTION-FACTORY INSPECTION AND PRODUCTION PERSONNEL WERE INFORMED OF THE RESULTS OF THIS ANALYSIS.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-98-04-3111 PROGRAMMER	FAR 99-42001-717	990419	ETR	YES	60/C NO	990483
FAILURE MODE-ERRATIC OPERATION. THE PROGRAMMER WAS REJECTED WHEN DURING VERNIER ENGINE EXERCISE, THE BOOSTER ENGINE S MOVED AND THE VERNIER ENGINE STOPPED MOVING. THE REPORTED FAILURE OF THE PROGRAMMER WAS NOT CONFIRMED AND NO CAUS F. FOR THE REPORTED FAILURE WAS FOUND IN THE PROGRAMMER EVEN AFTER EXTENSIVE TESTING.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION CAN BE TAKEN BECAUSE THE FAILURE REPORTED WAS NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-98-04-3108 PROGRAMMER-CAPACITOR	FAR 99-42001-697	990413	FACTORY	YES	60/C NO	990486
FAILURE MODE-FAIL DURING OPERATION. PROGRAMMER WAS REJECTED WHEN SWITCH 7 CHANGED STATE AT THE SAME TIME SWITCH 11 CHANGED STATE. THE A-B MODULE WAS OBSERVED TO BE CONTAMINATED WITH A LIQUID (ALKALYD VEHICLE) AND CAPACITOR C-2 WIRED ACROSS TERMINALS 8 AND 10 RATHER THAN ACROSS TERMINALS 7-9 OF THE RELAY.							
CORRECTIVE ACTION-FACTORY INSPECTION AND PRODUCTION PERSONNEL WERE INFORMED OF THIS ANALYSIS. THE SOURCE OF THE L18 UID CONTAMINATION IS UNDER INVESTIGATION.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-98-04-3110 PROGRAMMER-BOARD	FAR 99-42001-727	990405	FACTORY	YES	60/C NO	
FAILURE MODE-ERRATIC OPERATION. UNIT WAS REJECTED FOR ERRATIC OPERATION OF SWITCHES 6 AND 7. FAILURE WAS TRACED TO A TRANSISTOR 8-6 (2N637) WHICH HAD AN INTERMITTANT SHORT OF BASE LEAD TO HEADER. THE BASE LEAD HAD BEEN MOVED TOO CL ONE TO THE HEADER WHEN THE TRANSISTOR HAD BEEN DEFORMED DURING MANUFACTURE OF THE TRANSISTOR.							
CORRECTIVE ACTION-RECEIVING-INSPECTION REQUESTED TO MONITOR LEAD PLACEMENT IN ALL TRANSISTORS. GENERAL ELECTRIC WAS							

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ADVISED OF THIS ANALYSIS IN RAR 8LV-88-04-8085.							890484
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-88-04-272 AUTOPILOT PROGRAMMER	PAR 88-4100A-7	880404	FACTORY	YES	60/C NO	890431
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. SWITCH 28 HAD NO OUTPUT. DUE TO IMPROPERLY CONSTRUCTED DIODE MATRIX BOARD.							
CORRECTIVE ACTION-RECOMMEND TIGHTER FACTORY MANUFACTURING AND INSPECTION PROCEDURES.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	8LV-88-04-5103 COUNTER CIRCUIT BOARD	PAR 88-41101-5	5303	FACTORY	YES	60/C NO	890489
FAILURE MODE-FAIL DURING OPERATION. THE COUNTER CIRCUIT BOARD WAS REJECTED WHEN THE PROGRAMMER CLOCK STOPPED AT 0.5 SECOND. FAILURE WAS TRACED TO SOLDER BETWEEN PINS 2 AND 7 OF BINARY IN-4.							
CORRECTIVE ACTION-INSPECTION PERSONNEL WERE REQUESTED TO EXERCISE MORE CARE IN POST-SOLDERING INSPECTION OF THE BINARY MODULES.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	60C/ACU83-001-80/FC-CO-01-0071-023 COMPOSITE-FACTORY PUMPER SUPPLY	7123	FACTORY	NO	60/C NO		890316
FAILURE MODE- ERRATIC OPERATION PITCH PROGRAM PROFILE-MIDWESTERN RECORDED NO.2 CHANNEL 18- DISPLAYED A SUPERIMPOSED 60 CPS SIGNAL OF 0.2V PEAK-TO-PEAK. THIS PROBLEM RESULTED FROM A FAULTY GROUND CONNECTION IN THE GROUND 400 CPS SUPPLY.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	60C/ACU83-001-80/FC-CO-01-0071-023 COMPOSITE-FACTORY AMPLIFIER-BACKOUT-	71-23	FACTORY	NO	60/C NO		890318
FAILURE MODE- OUT OF TOLERANCE. SUSTAINED PITCH AXIS END-TO-END TORQUING GAINS WERE OUT OF TOLERANCE WITH AGE TORQUING AND PITCH PROGRAM VOLTAGE APPLIED TO THE AIRBORNE TORQUEZ AMPLIFIER. CAUSE- GAIN CHANGE BY THE AGE PITCH SUEKOUT AMPLIFIER.							

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AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5103 PROGRAMMER-SWITCH	FAR 89-48001-6	640314	FACTORY	YES	60/C NO
FAILURE MODE-ERRATIC OPERATION. PROGRAMMER WAS REJECTED WHEN DURING PAT VIBRATION TESTS SWITCH 3 CHANGED STATE TWICE WITHIN 5 MILLISECONDS. THE FAILURE REPORTED WAS NOT CONFIRMED AND NO CAUSE FOR THE FAILURE REPORTED WAS FOUND.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN BECAUSE THE FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5119 ROLL TRANSDUCERS	FAR 87-93900-026	640311	FACTORY	YES	CRESCENT NO
FAILURE MODE-OUT OF TOLERANCE. TWO ROLL TRANSDUCERS WERE REJECTED FOR A PHASE SHIFT OF MORE THAN 3 DEGREES A MAXIMUM OF 3 DEGREES IS CALLED OUT IN EOP 330-628 FAILURE ANALYSIS DID NOT CONFIRM REPORTED FAILURE. FAILURE MAY HAVE RESULTED FROM IMPROPER CHECKOUT PROCEDURES.						
CORRECTIVE ACTION-FAR SLV-99-04-5118P COVERS CORRECTIVE ACTION CONCERNING PHASE SHIFT BEING GREATER THAN 3 DEGREES.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-98-04D-273 TRANSFORMER, EXCITATION	FAR 87-04353-1	640301	ETR		TRANSONICS TS-2314
FAILURE MODE-OUT OF SPECIFICATION-PRIMARY OF THE EXCITATION TRANSFORMER DREW EXCESSIVE NO LOAD CURRENT.						
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE WAS UNDETERMINED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	F4-7CD-02-5302 FUSE	COMPOSITE-B FACT	5302	ETR-14	YES	NO
FAILURE MODE-THE SIGNAL MONITOR FUSE MONITORING THE ARCENT TIMER DISCRETE TO THE UPPER STAGE FAILED TO BLOW ALTHOUGH THE SIGNAL WAS SUCCESSFULLY TRANSMITTED. THE FAILURE WAS ATTRIBUTED TO THE TYPE OF FUSE BEING USED.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.						
VEHICLE EFFECT-TEST DELAY.						
CORRECTIVE ACTION-SUBSEQUENT TESTING WAS ACCOMPLISHED USING LITTEL FUSES.						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-9D-04-5096 PROGRAMMER SAFE/ARM SWITCH	FAR 7-41011-999	730 640217	WTR	YES NO	60/C
FAILURE MODE-PREMIATURE OPERATION- THE PROGRAMMER INTEGRATOR AUTOPLOT GROUP WAS REJECTED WHEN THE COMAX SEPARATION VALVE FIRED, AND OTHER PROGRAMMER ARMED OUTPUTS WERE OBSERVED. ALTHOUGH THE PROGRAMMER ARM/SAFE INDICATOR INDICATED SAFE. ARMED SAFE SWITCH WHEN OPENED UP SHOWED 2 SWITCHES SAFE AND 8 ARMED. THIS WAS CAUSED BY A COMMIT STOP COMMAND BEING GIVEN WHILE THE PROGRAMMER WAS ARMING IN A PREVIOUS TEST. (THIS CAUSED A LOSS OF THE ARM COMMAND).						
CORRECTIVE ACTION-RAR A-9D-04-6076 WAS ISSUED TO DESIGN GROUP RECOMMENDING AN AGE LOGIC DESIGN CHANGE TO PREVENT RE CURRENCE OF THIS FAILURE MODE. TCP 2098 WILL INCORPORATE LOGIC CHANGE.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-98-04-5093 LOGIC 3 CIRCUIT BOARD	FAR 68-47031-3	640210	FACTORY	YES NO	60/C
FAILURE MODE-FAIL DURING OPERATION- THE LOGIC 3 CIRCUIT BOARD FAILED WHEN THERE WAS NO ZERO-TIME INDICATION AND SWI TCH 19 WAS DIFFICULT TO RESET. FAILURE WAS TRACED TO A DEFECTIVE 0-2 TRANSISTOR (NAT933) WHICH WAS CONTAMINATED.						
CORRECTIVE ACTION-REINSTITUTED 100 PER CENT RECEIVING INSPECTION ELECTRICAL TESTS FOR ALL TRANSISTORS. (REF RAR SLV -98-04-5094).						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-AP-10-132-F ARMING DEVICE.	FAR 27-34244-601	5302 640208	ETR	60/C	
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME, BY FAILING TO TRANSFER THE DESTRUCT SIGNAL FROM RECEIVER NUMBER TWO.						
CORRECTIVE ACTION-NONE SINCE THE FAILURE WAS UNCONFIRMED.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-AP-10-133F POWER AND SIGNAL CONTROL UNIT.	FAR 27-34239-819	5304 640208	FACTORY	60/C	
FAILURE MODE-STRUCTURAL. UNIT FAILED DUE TO IMPROPER INTER CONNECTED WIRING ERROR.						
CORRECTIVE ACTION-60/C QUALITY CONTROL CORRECTIVE ACTION BY IMPROVED INSPECTION REQUEST THROUGH RAR SLV-AP-10-3036.						

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AUTOPILOT-SQUARE-A/B PROGRAMMER	PS-7CD-03-3001 PROGRAMMER	COMPOSITE-B FACT	5001	ETRIS	YES	NO	890366
<p>FAILURE MODE-MEASUREMENT S18485-RELEASE PAYLOAD-DID NOT DROPOUT AS IT SHOULD DURING THE INTERVAL BETWEEN THE GUIDANCE DISCRETE AND THE PROGRAMMER BACKUP. SATISFACTORY RESULTS HAD BEEN OBTAINED WITH A DIFFERENT PROGRAMMER.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-OPEN-FAILURE UNDER INVESTIGATION.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-98-04-5081 ROLL DISPLACEMENT SYRO	FAR 69-42002-837	640200	ETR	YES	NO	890300
<p>FAILURE MODE-STRUCTURAL-SYRO PACKAGE REJECTED FOR INTERMITTANT GRINDING NOISE. THE ROLL-DISPLACEMENT SYRO WAS FOUND TO HAVE BEARING DETEIORATION</p> <p>CORRECTIVE ACTION-60/C PROPOSED ECP TO INVESTIGATE SPIN MOTOR BEARINGS AND LUBRICATION. THIS PROPOSAL WAS DIRECTED TO BE HELD IN ABEYANCE, PENDING FINAL DIRECTION FOR INCORPORATION OF 60/C & NEW AUTOPILOT SYSTEM.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-98-04-5084 PROGRAMMER-TRANSISTOR	FAR 69-42001-891	640126	ETR	YES	60/C NO	890487
<p>FAILURE MODE-FAIL DURING OPERATION. PROGRAMMER WAS REJECTED WHEN THE ZERO-TIME INDICATION DID NOT GO OUT WHEN THE PROGRAMMER WAS RUNNING. FAILURE WAS TRACED TO LOW BREAKDOWN VOLTAGE IN 6-1 TRANSISTOR ON THE ASAS CIRCUIT BOARD. THIS WAS CAUSED BY INTERNAL CONTAMINATION OF THE TRANSISTOR.</p> <p>CORRECTIVE ACTION-REINSTITUTED 100 PER CENT RECEIVING INSPECTION OF ALL TRANSISTORS. RECYCLED ALL TRANSISTORS FROM STOCK THROUGH RECEIVING INSPECTION.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-98-04-5086-F ELECTRICAL CONNECTOR	FAR 69-42001-889	640126	FACTORY	NO	CONVAIR NO	890366
<p>FAILURE MODE-OUT OF TOLERANCE. DURING PAY VIBRATION, ROLL VOLTAGE SIGNAL DECREASED APPROXIMATELY 50 PERCENT FOR 2.3 SECOND PERIOD. PROBLEM CAUSED BY FAULTY CONNECTION IN THE MONITORING CIRCUIT OF TEST ACCESSORY P/N 27-89488-1. CONNECTION HAD NEVER BEEN SOLDERED.</p> <p>CORRECTIVE ACTION-TEST ACCESSORY WAS REPAIRED.</p>							

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AUTOPLOT-SQUARE-A/B PROGRAMMER	SOC/ASUMS-001-37/PC-CO-01-0071-021 COMPOSITE-FACTORY 89-42001-833	7121 680124	FACTORY NO	CO/C NO SAME			890320
FAILURE MODE-ERRATIC OPERATION. PITCH PROGRAM PROFILE COULD NOT BE EVALUATED -HIGHEST NO.2 CH=18- DUE TO AN AC ENVELOPE INTERFERENCE ON THE CHANNEL. THIS PROBLEM RESULTED FROM A FAULTY SALVO INTERACTING WITH CHANNEL 15 OF THE SAME RECORD.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5088 ASAI CIRCUIT BOARD TRANSISTOR	FAR 89-42001-829	680124	FACTORY	YES	CO/C NO	890302
FAILURE MODE-ERRATIC OPERATION. PITCH OUTPUT WAS ERRATIC AT 15 SECONDS. TRANSISTOR 8-3 NA7334 ON THE ASAI CIRCUIT BOARD WAS FOUND TO HAVE AN INTERMITTANT OUTPUT. FAILURE CAUSED BY LACK OF A WELD BETWEEN BASE LEAD AND BASE PLATE.							
CORRECTIVE ACTION-TRANSISTOR HAD BEEN MADE BEFORE 1962. SINCE UNIT WAS MADE SEVERAL CHANGES IN BONDING PROCEDURE HAVE BEEN MADE TO ELIMINATE THIS TYPE OF FAILURE.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	LOC/ASUMS-001-36/PC-CO-01-0058-001 COMPOSITE-FACTORY PROGRAMMER-MOTOR	3801 680117	FACTORY	NO	CO/C NO		890312
FAILURE MODE- OUT OF TOLERANCE. THE 15 SECOND DURATION ROLL PROGRAM TORQUING WAS NOT RECORDED DUE TO A 2VDC SETUP OF THE ROLL SET MOTOR (AGE) AG-4VDC SETUP WAS REQUIRED.							
SYSTEM EFFECT-FAIL DURING OPERATION.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5088 CIRCUIT BOARD/DIODE	FAR 89-41001-815	2900 681006	FACTORY	YES NO		890374
FAILURE MODE-SHORT-ELECTRICAL. DURING TROUBLESHOOTING FOR ERRATIC OPERATION EXHIBITED BY THE SWITCH 13 OUTPUT, THE SWITCH 13 OUTPUT WAS INADEQUATELY SHORT-CIRCUITED TO GROUND. ANALYSIS REVEALED THAT DIODE CR-1 IN THE SWITCH 13 BAF E OUTPUT LINE WAS OPEN-CIRCUITED. THE DIODE IS PART OF THE A-4 CIRCUIT BOARD ASSEMBLY.							
CORRECTIVE ACTION-FAILURE CONFIRMED. NO CORRECTIVE ACTION TAKEN.							

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SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5082P SWITCH	FAR 89-41001-871	2900 691006	FACTORY	YES NO	YES 60/C	093027
FAILURE MODE-ERRATIC OPERATION. DURING MISSILE CHECKOUT, SWITCH IS OUTPUT DROPPED 2 TO 4 VOLTS INTERMITTENTLY. THE FAILURE WAS NOT CONFIRMED. THE CAUSE OF THE INTERMITTENT OUTPUT LEVEL CHANGE WAS EITHER DESTROYED OR WAS MASKED BY THE ACCIDENTAL SHORT CIRCUITING DURING TROUBLESHOOTING OR RESULTED FROM TEST EQUIPMENT MALFUNCTION.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. NO CORRECTIVE ACTION TAKEN.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	FTA9377/P4-7CO-05-3301 RESET RELAY	COMPOSITE-B FACT	3301 650929	14 -180	NO NO		093006
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. LOSS OF CAME INDUSTRIAL POWER, RESULTING IN LOSS OF AC POWER TO THE PROGRAMMER, CAUSED A RESET SIGNAL TO BE GENERATED FOR APPROXIMATELY 2 MINUTES.							
SYSTEM EFFECT-OPERATION TOO LONG. RESET SIGNAL WAS GENERATED FOR APPROXIMATELY 2 MINUTES WHICH IS IN EXCESS OF THE 30 SECONDS MAXIMUM SPECIFICATION.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-REPLACED PROGRAMMER PER IR 1074423.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5082P SWITCH	FAR 89-41001-871	650824	FACTORY	YES NO		094073
FAILURE MODE-FAIL DURING OPERATION. AFTER COMPLETION OF STRESS LIMITS TESTS IT WAS REPORTED THAT SWITCH 20 DID NOT RESET DURING STRESS-LIMIT TEST VIBRATION ALONG THE X-AXIS. PER PROCEDURE TPO9288A. THE FAILURE WAS CONFIRMED AND WAS DUE TO AN IMPROPER SEQUENCE IN RE-APPLYING A-C AND D-C POWER AFTER POWER WAS TURNED OFF.							
CORRECTIVE ACTION-FAILURE CONFIRMED. NO CORRECTIVE ACTION TAKEN.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5082P CIRCUIT BOARD/TRANSISTOR-2M837	FAR 89-41001-871	650824	FACTORY	YES NO		093189
FAILURE MODE- ELECTRICAL OPEN. AT THE BEGINNING OF FAILURE ANALYSIS TESTING, THERE WAS NO ZERO LIGHT INDICATION. THE FAILURE WAS CONFIRMED AND WAS DUE TO TRANSISTOR 8-2 (2M837) ON CIRCUIT BOARD IN THE AREA HIGH POWER ASSEMBLY (P/N 27-79391-007, S/N 5010041) BEING BURNED OPEN BY SHORTING CIRCUITING THE ZERO TIME LIGHT OUTPUT DURING TROUBLESHOOTING.							
CORRECTIVE ACTION-FAILURE CONFIRMED. NO CORRECTIVE ACTION TAKEN.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

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AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5045P CIRCUIT BOARD/RELAY R88HLP48	FAR 69-41001-971	650824	FACTORY	YES NO	893191
FAILURE MODE-FAIL DURING OPERATION. DURING THE FAILURE ANALYSIS CONTROL TEST CONTROL TASK HISTORY DATE WAS REVIEWED AND IT WAS INDICATED THAT DURING THE TIME WHEN THE VIBRATION SLEEP WAS ATTEMPTED (THE EXCITER COULD NOT ACCEPT THE LOADING AT THE LOW-FREQUENCY END OF THE SLEEP, THE SYSTEM STOPPED APPROXIMATELY 8 TIMES). THE HIGH POWER SWITCHES WOULD NOT RESET WITH THE AUTOMATIC RESET OR THE MANUAL RESET. THE FAILURE OF THE HIGH POWER SWITCHES TO RESET WAS MOST LIKELY DUE TO R-1 RELAY 1033-TYPE R33 HLP48, UK45513) P/N 69-73900-087 BEARINGS STICKING DURING VIBRATION THIS RELAY IS A COMPONENT ON THE ASAR HIGH POWER CIRCUIT BOARD ASSEMBLY (P/N 27-73351-807).						
CORRECTIVE ACTION-RAR SLV-99-04-6084 WAS ISSUED RECOMMENDING A NEW RELAY THAT CAN WITHSTAND VIBRATIONS WITHOUT DAMAGE TO ITS INTERNAL MECHANISM.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5045P CIRCUIT BOARD/CAPACITOR	FAR 69-41001-971	650824	FACTORY	YES NO	893193
FAILURE MODE-FAIL DURING OPERATION. DURING THE FAILURE ANALYSIS CIRCUIT BOARD ATAL POWER SUPPLY BOARD (P/N 27-45643 -3, S/N 4090004) WAS X-RAYED AND REVEALED THAT THE CAPACITOR C-4 TANTALUM SLUG WAS BROKEN OFF ITS FLANGE SUPPORT. ERATIC SWITCH ACTION (BOTH HIGH AND LOW) COULD BE ATTRIBUTED TO CAPACITOR C-4 INTERMITTENTLY SHORT-CIRCUITING RESULTING IN TRANSIENTS IN THE PLUS 43 VOLT DC OUTPUT.						
CORRECTIVE ACTION-RAR SLV-99-04-6083 WAS ISSUED RECOMMENDING THAT ALL ITT MET ELECTROLYTIC TANTALUM CAPACITORS MADE WITHOUT A TEFLON BASKET BE PURGED FROM STOCK AND FROM PROGRAMMER POWER SUPPLY BOARDS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5045P RE RELAY	FAR 69-41001-971	650824	FACTORY	YES NO	893197
FAILURE MODE-FAIL TO OPERATE. THIS AUTOPILOT PROGRAMMER WAS REJECTED AFTER COMPLETION OF STRESS LIMIT TESTS. IT WAS REPORTED SWITCH 20 DID NOT RESET DURING STL VIBRATION ALONG THE X-AXIS, PER PROCEDURE 1909F896A. PRIOR TO REJECTION ALL HIGH POWER SWITCHES HAD FAILED TO RESET. POWER WAS TURNED OFF AND IMPROPER SEQUENCING ON REAPPLYING THE POWER RESULTED IN SWITCH 20 NOT RESETTING. FAILURE OF ALL SWITCHES TO RESET WAS MOST LIKELY DUE TO A DEFECTIVE BEARING IN THE R11 RELAY.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5045P TRANSISTOR	FAR 69-41001-918	7112	FACTORY	YES NO	893198
FAILURE MODE-OPEN SELECT-1- UNIT REJECTED DURING P.A.T. FOR PROGRAMMER FUNCTIONS OPERATING AHEAD OF THEIR NORMAL TIMES. FAILURE CONFIRMED AND ATTRIBUTED TO AN INTERMITTENT OPEN CIRCUITING EMITTER CONNECTION IN A 2N1232 TRANSISTOR.						

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CORRECTIVE ACTION-THE VENDOR WESTMAN WAS DROPPED AS AN APPROVED SOURCE OF THIS TYPE TRANSISTOR.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-90-04-3036F CIRCUIT BOARD WIRING	FAR 7-41001-895	850817	WTR	YES NO	211-102, S/N 9 04-0044
FAILURE MODE-ELECTRICAL SHORT. DURING A LOOP TEST, THE PROGRAMMER STOPPED SEQUENCING. THE FAILURE WAS CONFIRMED AND WAS CAUSED BY A SHORT-CIRCUIT BETWEEN PINS 2 AND 7 OF RELAY K374 OF THE SUB-ROUTING SEQUENCE (BELOCK P/N 211-102, S/N 904-0044). THE SHORT CIRCUIT WAS CAUSED BY A COMBINATION OF DEFICIENT WIRE ROUTING AT THE BASE OF THE RELAY, AN AGE (6 1/2 YEARS), AND VIBRATION EXPERIENCED IN HANDLING AND USE.						
CORRECTIVE ACTION-NO CONNECTIVE ACTION.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5035P CIRCUIT BOARD-RELAY	FAR 80-41001-871	850810	FACTORY	YES NO	R35HLP48
FAILURE MODE-ELECTRICAL OPEN-DURING PRODUCTION ACCEPTANCE TEST (PAT) VERIFICATION TESTING, THE HIGH-POWER SWITCHES DID NOT TURN ON AND THE ZERO-TIME SIGNAL DID NOT OCCUR. THE REPORTED FAILURE WAS CONFIRMED AND WAS CAUSED BY AN OPEN - CIRCUITED COIL IN THE SAFE 28 VOLT RELAY (US9 TYPE UG45613 P/N R35HLP48) ON CIRCUIT BOARD P/N 27-75331-807, S/N 140. RELAY FAILURE WAS THE RESULT OF COIL ROTATION INDUCED DURING THE 36 PAT VERIFICATION VIBRATION CYCLES. THE DESIGN OF THIS RELAY DOES NOT INHIBIT COIL ROTATION.						
CORRECTIVE ACTION-RAR SLV-99-04-8038 WAS WRITTEN REQUESTING REDESIGN OF THE SAFE 28 VOLT CIRCUIT TO INCLUDE A RELAY LESS SENSITIVE TO ROTATION.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5035-F RELAY	FAR 80-41001-871	850810	FACTORY	YES NO	
FAILURE MODE-ELECTRICAL OPEN. THIS AUTOPILOT PROGRAMMER WAS REJECTED DURING PAT VERIFICATION TESTING, THE HIGH POWER SWITCHES DID NOT TURN ON AND THE ZERO TIME SIGNAL DID NOT OCCUR. FAILURE WAS CAUSED BY AN OPEN CIRCUITED COIL IN THE SAFE 28 VOLT RELAY. RELAY FAILURE WAS THE RESULT OF ROTATION INDUCED DURING THE 36 PAT VERIFICATION VIBRATION CYCLES. THE DESIGN OF THIS RELAY DOES NOT INHIBIT COIL ROTATION.						
CORRECTIVE ACTION-ECP 3426 PROVIDES REDUNDANT DESIGN TO MINIMIZE THE POSSIBILITY OF A MISSION FAILURE.						

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AUTOPILOT-SQUARE-A/B PROGRAMMER	88F287A RELAY	UTP-PAT 88-41001-871	830810	60/C	NO	60/C
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING 2ND 2-AXIS PAT VERIFICATION VIBRATION (96 TOTAL) CYCLE, ALL HIGH POWER SWITCHES FAILED TO OPERATE AND THE ZERO TIME LIGHT FAILED TO INDICATE END OF RUN. CAUSED BY BREAKAGE OF RELAY COIL WIRE OF SAFE + 120 VDC REFER TO FAILURE ANALYSIS REPORT SLV-99-04-3033-P FOR DISCUSSION OF RELAY PROBLEM.</p>						
<p>CORRECTIVE ACTION-ENS APPROVAL TO SUBMIT ECP TO USE A NEW M1-REL RELAY FOR SLV AND CENTAUR. REFER TO MAP M031512.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60C/BKFS-056/AZ-801-00-147	COUNTDOWN	147F 850405	AAPB	YES NO	60/C
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PROGRAMMER WOULD NOT RECYCLE TO SAFE.</p>						
<p>SYSTEM EFFECT-NONE. PROGRAMMER WAS MANUALLY COMMANDED SAFE.</p>						
<p>VEHICLE EFFECT-COUNTDOWN DELAYED.</p>						
<p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60C/BKFS-056/AZ-801-00-147	FLIGHT	147F 850405	AZ 321.4	YES NO	60/C
<p>FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. EJECTION OF PAYLOAD EJECTION MECHANISM (PEM) PAYLOAD WAS NOT ACHIEVED DUE TO EITHER SWITCH FAILURE WITHIN THE AUTOPILOT PROGRAMMER OR FAILURE WITHIN THE AERONAUTICS EJECTION MECHANISM.</p>						
<p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.</p>						
<p>VEHICLE EFFECT-COMMANDS NOT SENT.</p>						
<p>CORRECTIVE ACTION-NONE. IT HAS BEEN RECOMMENDED THAT BOTH T1 AND T2 SIGNALS FROM THE ATLAS PROGRAMMER BE INSTRUMENTED TO PROVIDE FAILURE POINT DETERMINATION.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60/C22H65-027-DA1050-/LA-7MO-03-71	COMPOSITE-FRD/DPL	7111 850731	PALC	NO NO	GENERAL ELECTRIC 1C
<p>FAILURE MODE-PREATURE OPERATION. DURING LOOP TEST ONE-HALF SCALE NEGATIVE PITCH COMMAND NORMALLY SENT FROM ABETS A T 125 TO 150 SECONDS WAS INADVERTANTLY GENERATED 5 SECONDS EARLY.</p>						
<p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. PROGRAMMER RECEIVED BECO DISCRETE FROM ABETS WHILE NEGATIVE STEERING COMMAND BEING ACTED UPON.</p>						

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VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-OPERATOR INSTRUCTED TO BE MORE PRECISE.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	MSCAPE 077/P48-CD-04-DAC8 SWITCH	COMPOSITE-J FACT	131 650731	338 PLUS 20	NO NO	60/C
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PROGRAMMER DID NOT START. INVESTIGATION SHOWED THAT AGE SWITCH LCS 13 WAS INCORRECTLY POSITIONED BY FOLLOWING THE PROCEDURE.						
SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-PLACED AGE SWITCH LCS 13 IN CORRECT POSITION.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5048F CIRCUIT BOARD RELAY	FAR 27-41001-629	650731	FACTORY	YES	YES 83541P48 NO
FAILURE MODE-CONTAMINATION-TIME-DURING PRODUCTION ACCEPTANCE TEST (PAT) VERIFICATION, THE PROGRAMMER HIGH-POWER SWITCHES WOULD NOT RESET ON COMMAND. THE FAILED INDICATION REPEATED AFTER TWO CONSECUTIVE VIBRATION TESTS. AFTER THE SECOND TEST, POWER WAS SHUT OFF TO RESET THE SWITCHES AND THE FAILURE DISAPPEARED. FAILURE ANALYSIS COULD NOT CONFIRM THE FAILURE. HOWEVER, TEAR-DOWN EXAMINATION OF RELAY K-1 ON CIRCUIT BOARD P/N 27-401 7-1 INDICATED THAT THE PROBABLE CAUSE OF THE FAILURE WAS A CONTAMINANT IN THE BEARING, PREVENTING THE RELAY ARMATURE FROM MOVING.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	GOC/22M65-028-DA1037-/LA-7NO-01-71 11 SWITCH	COMPOSITE-PRD/DPL	7111 650730	2-4	YES NO	
FAILURE MODE-ERRATIC OPERATION. DURING LOOP TEST SWITCH 13 (GOU) MALFUNCTIONED. IT ACTIVATED AT THE PROPER TIME THE 14 DROPPED OUT. THIS CYCLE REPEATED SEVEN TIMES.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.						
VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED.						
CORRECTIVE ACTION-REPLACED PROGRAMMER.						

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AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-90-04-5047F CIRCUIT BOARD-RECTIFIER	FAR 69-42001-947	71-11 650728	WTR	YES NO	095053
FAILURE MODE-FAIL DURING OPERATION. SWITCH 13 WOULD NOT TURN ON. THE TURN-ON PULSES APPEARED AT THE SWITCH OUTPUT AT THE PROPER TIME SEQUENCES, BUT THE SWITCH DID NOT HAVE A SUSTAINED OUTPUT. THE REPORTED FAILURE WAS CONFIRMED AND WAS DUE TO TEMPERATURE SHOCK TESTS.						
CORRECTIVE ACTION-PER FAR-SLV-90-04-8057 AN EXTERNAL LOAD HAS BEEN ADDED TO THE SILEON-CONTROLLED RECTIFIER OUTPUT.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5051F ACCELEROMETER SWITCH	FAR 27-04099-1	5701 650728	FACTORY	YES NO	095058
FAILURE MODE-CONTAMINATION. THE ACCELEROMETER SWITCH SELF-TEST CIRCUIT HAD NO OUTPUT. THE FAILURE WAS CONFIRMED AND IS ATTRIBUTED TO EXCESSIVE EPOXY ON THE SOLENOID PLUNGER CAUSING A BINDING ACTION BETWEEN THE PLUNGER AND ITS FITTING PREVENTING THE PLUNGER FROM TRAVELLING ITS FULL RANGE AND ACTUATING THE ACCELEROMETER SWITCH.						
CORRECTIVE ACTION-NONE. NO CORRECTIVE ACTION-THIS IS THE ONLY FAILURE SINCE JULY 114-63 WAS CONDUCTED.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5048F CIRCUIT BOARD-WIRING	FAR 27-41001-929	57028	FACTORY	YES NO	095053
FAILURE MODE-STRUCTURAL-DURING PRODUCTION ACCEPTANCE TEST (PAT) VERIFICATION. THE PROGRAMMER WOULD RESET INTERMITTENTLY. THE FAILURE WAS CONFIRMED AND WAS CAUSED BY BROKEN WIRES IN THE PROGRAMMER REMOTE SET (PIN27-45203-803, SN18). THE WIRES BROKE BECAUSE OF EXCESSIVE TENSILE STRESS APPLIED DURING 19 PAT VERIFICATION VIBRATION CYCLES.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5048F SWITCH	FAR 27-41001-929	650728	FACTORY	NO NO	095054
FAILURE MODE-ERRATIC OPERATION-SWITCH 9 CHANGED STATES WHEN THE SWITCH 11 RELAY DROPPED OUT. THIS FAILURE WAS NOT CONFIRMED. ANALYSIS DETERMINED THAT THE FAILURE WAS DUE TO LINE COUPLING BETWEEN SWITCH 9 AND SWITCH 11 THROUGH THE TEST SET. THE CAUSE OF THE REPORTED FAILURE WAS IN THE TEST SET.						
CORRECTIVE ACTION-THE TEST SET WAS REPAIRED AND SWITCH 9 OPERATION BECAME NORMAL.						

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SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
SUB-SYSTEM						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-5045F CIRCUIT BOARD TRANSISTOR-2M232	FAR 99-41001-813	930717	FACTORY	YES	WESTRAM NO
<p>FAILURE MODE-OPEN (ELECTRICAL)-DURING PRODUCTION ACCEPTANCE TESTING (PAT) VERIFICATION SINE/RANDOM VIBRATION TESTIN G, PROGRAMMER FUNCTIONS WERE OBSERVED TO OPERATE AHEAD OF THEIR NOMINAL TIMES. THIS CONDITION WAS INTERMITTENT. THE R EPORTED FAILURE WAS CONFIRMED AND WAS CAUSED BY AN INTERMITTENTLY OPEN-CIRCUITING ENTIRE CONNECTION IN A 2M232 TRA NSISTOR (6-2) OF BINARY 7-3 ON CIRCUIT BOARD AL0A1 (P/N 87-40964-803, 8/NS23).</p>						
<p>CORRECTIVE ACTION-WESTRAM WAS DROPPED AS AN APPROVED SOURCE OF THIS TRANSISTOR.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	50/C AGU3-001-41/FC-CO-01-0053-00 COMPOSITE-FACTORY 2 POWER SUPPLY	5302 930718			NO NO	50/C
<p>FAILURE MODE-DRIFT. THE INTENSITY OF THE PITCH PROGRAM DIRECTLINE RECORDING WAS TOO LIGHT TO PERMIT QUANTITATIVE AN ALYSIS. THERE WAS ALSO A 120CPS, 0.1V PEAK-TO-PEAK SIGNAL SUPERIMPOSED ON THE CHANNEL. THE EXTRANEUS SIGNAL WAS DUE TO GROUND LOOP PICKUP BETWEEN THE INLET AC POWER SUPPLY AND THE CHECKOUT AGE. AN ADJACENT DOCK AC SUPPLY HAD BEEN U SED WITHOUT GROUNDING IT TO DOCK 14.</p>						
<p>SYSTEM EFFECT-ERRATIC OPERATION.</p>						
<p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. POST-COMPOSITE TESTING REQUIRED.</p>						
<p>CORRECTIVE ACTION-DIRECTLINE RECORDER INTENSITY ADJUSTED. THE ADJACENT DOCK WAS GROUND TO DOCK 14, ELIMINATING TH E GROUND LOOP SIGNAL.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	99F2897A CANISTER	UTP-SLT 99-41001-871	930718	50/C	YES	50/C NO
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING Y-AXIS SLT VIBRATION, THE TEST SPECIMEN S/N 411-0038 WOULD NOT RUN, THE ZERO TIME LIGHT WOULD NOT LIGHT. ALTHOUGH FAILURE WAS NOT CONFIRMED, SIMILAR PROBLEMS OCCURRED DUE TO B AD CAPACITOR IN + 43 VOLT LINE IN POWER SUPPLY MODUL CAUSING HIGH RIPPLE VOLTAGE. SPECIMEN OPERATED WITH NEW POWER SUPPLY MODULE INSTALLED.</p>						
<p>CORRECTIVE ACTION-REFERENCE FAILURE LOG NO. 931-3-001. ECP 3480 HAS BEEN APPROVED WHICH CHANGED PROGRAMMER CRITICAL DIGITAL CIRCUITS TO SPRAGUE ONLY CAPACITORS.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	FTAS93/P6-MD-01-04C8 CAPACITOR	COMPOSITE-FRD/DPL 58-41001-811	1310 930713	368	NO NO	
<p>FAILURE MODE-SHORT (ELECT). GROUND MONITORING SYSTEM PLACED A REVERSE BIAS ON THE TANTULUM CAPACITOR IN THE STABIN G DISCRETE INPUT CIRCUITRY CAUSING IT TO SHORT. DURING THE SAP TEST, THE SHORT DURATION GUIDANCE STABING DISCRETE SW ONED TO GROUND AND FAILED TO EFFECT INITIATION OF THE STABING SEQUENCE.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI VENDOR PART NO	VENDOR NAME VENDOR PART NO
SYSTEM EFFECT-OPERATION DOES NOT START. SYSTEM FAILED TO RESPOND TO THE STAGING DISCRETE DURING THE COUNTDOWN CAP Y EST. THE LAP TEST WAS STOPPED AND RUN WITH SATISFACTORY RESULTS.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-REPLACED PROGRAMMER AFTER TANKING TEST AND PLACED ZENER DIODE IN GROUND MONITOR LINE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-96-04-216 CIRCUIT BOARD-CAPACITOR	FAR 55-41001-611	650713	36-8	YES NO	
FAILURE MODE-SHORT ELECTRICAL. PROGRAMMER FAILED TO OPERATE ON COMMAND OF A GUIDANCE SIGNAL. FAILURE CAUSED BY FAILED WET SLUG 7. ITALUN CAPACITOR. A REVERSE VOLTAGE OF ABOUT 1.5 VOLTS HAD BEEN APPLIED TO THIS CAPACITOR CAUSING INTERMITTENT SHORT.						
CORRECTIVE ACTION-CIC 58102 BEING RELEASED TO REMOVE THE REVERSE BIAS SUPPLIED BY AGE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60C/BKF65-032/LA-701-00-7112 POWER SUPPLY	FLIGHT	7112 650712	2-4 131.30	YES 60/C NO	
FAILURE MODE-FAIL DURING OPERATION. THE PROBLEM WAS LOCALIZED TO THE PROGRAMMER POWER SUPPLY AND CIRCUITRY COMMON TO BOTH THE PROGRAMMER TIME ADVANCE AND THE HIGH POWER SWITCH 20 (SECON) TRIGGER. 22 COMPONENTS WERE IDENTIFIED. IN ADDITION TO THE PROGRAMMER HARNESS TRAIL, THAT COULD HAVE FAILED INDIVIDUALLY AND CAUSED THE MALFUNCTION. THE PRIMARY SUSPECT CAUSE OF THE FAILURE IS VIBRATION AND SHOCKS ASSOCIATED WITH DECO.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. AT BECON-6.543 SECONDS THE PROGRAMMER PACKAGE ERRONEOUSLY GENERATED THE SEC O COMMAND AND ADVANCED TO A CLOCK-TIME OF 400.						
VEHICLE EFFECT-PREMATURE SUBTAINER ENGINE CUTOFF AND MISSION FAILURE.						
CORRECTIVE ACTION-INCLUDES (1) INCORPORATION OF SPECIAL DIODES (2) ELIMINATION OF ALL DIPPED CONFORMAL COATED CIRCUIT BOARDS (3) REPLACEMENT OF UNION SWITCH RELAYS WITH BABCOCK RELAYS AND (4) INCORPORATION OF REDESIGNED SERVOAMPLIFIER POWER SUPPLY MODULE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	FR99C4249-1 TRANSFORMER	UTP-QUAL/PPT 27-04168-1	650706	60/C	YES 60/C NO	
FAILURE MODE-OUT OF TOLERANCE. DURING THE VISUAL INSPECTION TEST, PARA. 4-1.1, ONE TEST SPECIMEN HAD DIMENSIONAL OUT OF TOLERANCES WITH REFERENCE X. IT WAS MEASURED AS 0.14 INCHES AND LIMITS ARE REQUIRED OF 0.13 TO 0.21 INCHES. ALSO, REFERENCE Z MEASURED AS 0.044 INCHES WITH LIMITS OF 0.030 TO 0.040 INCHES. IN ADDITION, SEVEN SPECIMENS HAD ALL THREADS WITH 6 OR 7 THREADS WHERE 8 THREADS THE MINIMUM REQUIREMENT. THESE DISCREPANCIES WERE CAUSED BY AN OUT OF TOLERANCE BUTTON AND POTTING MATERIAL IN THE INSERTS.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-POTTING LABORATORY PERSONNEL WERE INSTRUCTED TO CLEAN POTTING MATERIAL FROM INSERTS. REF. CICTM N O. 531-A-018.							891803
AUTOPILOT-SQUARE-A/B PROGRAMMER	89C887-2 RELAY K-1	UTP-BLT 86-75001-010	850828	60/C	YES	UNION SWITCH NO 833MLP813	898631
FAILURE MODE-FAILURE TO OPERATE AT PRESCRIBED TIME- DURING BLT 2-AXIS VIBRATION, THE HIGH POWER SWITCHES WOULD NOT RESET USING THE AUTOMATIC RESET OR MANUAL RESET. RELAY K-1 ON BOARD ASAR BEARING STICKING WAS THE MOST LIKELY CAUSE OF FAILURE. REFER TO FAILURE LOG NUMBER 531-3-002.							
CORRECTIVE ACTION-AUTOPILOT DESIGN IS PREPARING MAP FOR USE OF BABCOCK BRISX RELAY IN BLV AND CENTAUR PROGRAMS IN PLACE OF PRESENT RELAY.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-98-04-5039F HARNESSES/WIRING/CIRCUITS	I R 87-41001-429	2250	ETR	YES	60C NO	895010
FAILURE MODE-OUT OF TOLERANCE-DURING AUTOPILOT SYSTEM CHECKOUT, IT WAS REPORTED THAT THE ROLL SET VOLTAGE OUTPUT INCREASED IN AMPLITUDE FROM 0.4 TO 1.0 VOLT. THE FAILURE WAS NOT CONFIRMED. THE REPORTED FAILURE MAY HAVE BEEN CAUSED BY A LOOSE CONNECTION IN THE AUTOPILOT SYSTEM AT ETR.							
CORRECTIVE ACTION-APPROPRIATE PERSONNEL AT ETR WERE INFORMED OF THE RESULTS OF THIS ANALYSIS. AS THERE WAS NO FAILURE IN THE PROGRAMMER, NO FURTHER ACTION WILL BE TAKEN.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	NSCAPE4180/P8-CO-01-04CS	COMPOSITE-J FACT	1510	368	NO	60/C NO	897433
FAILURE MODE-OUT OF TOLERANCE. ATLAS AND CENTAUR PROGRAMMERS WERE INADVERTENTLY OPERATED IN THE SAFE CONDITION THROUGHTOUT THE PLUS COUNT. CAUSED BY LATE MANUAL EJECTION OF UNBILICAL PLOCE PERMITTING PROGRAMMERS TO RETURN TO SAFE THEOUGH REDUNDANT CONTROL PATHS.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED.							
CORRECTIVE ACTION-REARM TEST.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-AB-04-207 SWITCH	PAR 85-41001-011	1510	FACTORY	YES	NO	
FAILURE MODE-OUT OF TOLERANCE. DURING COMBINED SYSTEM TESTS PERFORMED ON AC-6, SWITCH 33 ACTIVATED AT 43.88 SECONDS. THE EXPECTED ACTIVATION TIME WAS 40.0 SECONDS. AFTER EXTENSIVE TESTING, THE FAILURE COULD NOT BE CONFIRMED. THE MOST LIKELY CAUSE OF THIS FAILURE WAS AN INTERMITTENT OPEN CIRCUIT SOMEWHERE IN THE SWITCH 33 CIRCUITRY AND ADJACENT WE							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
REMARK: NO OPEN CIRCUITS WERE FOUND.							091109
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							094433
AUTOPILOT-344URE-A/B PROGRAMMER	SLV-99-04-5010P CIRCUIT BOARD TRANSISTOR	PAR 89-41044-3	950427	FACTORY	YES NO		094433
FAILURE MODE-ELECTRICAL OPEN. COUNTER 2 CIRCUIT BOARD (P/N 89-41044-3) FAILED WHEN THE B-7 BINARY FAILED TO SWITCH FROM HI TO LOW. THE FAULT WAS TRACED TO TRANSISTOR Q-42 (RHEEN USN 25497). TRANSISTOR CASE OPENED AND EVIDENCE OF HI TEMPERATURE FOUND. TRANSISTOR FAILED BECAUSE OF EXCESSIVE CURRENT POSSIBLY CAUSED BY INADVERTANT SHORT CIRCUITING OF F OUTPUT POINT BY UNISOLATED OSCILLOSCOPES USED DURING TEST.							090906
CORRECTIVE ACTION-ADAPTERS FOR PRODUCTION AREA OSCILLOSCOPES WERE PUT INTO SERVICE ABOUT 1 MAY 1965.							094433
AUTOPILOT-344URE-A/B PROGRAMMER	AGUR3-001-3Y/PC-CO-01-0071-012	COMPOSITE-FACTORY	7112 850420		NO NO	NO NO	094433
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. CYRO BIAS WAS MISSING PRIOR TO SUBTAINER CUTOFF, DUE TO PROGRAMMER TAPE PROBLEM.							094433
SYSTEM EFFECT-OPERATION DOESNT START.							094433
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.							094433
CORRECTIVE ACTION-TEST PROGRAMMER TAPES (AGE) WERE REPLACED.							094433
AUTOPILOT-344URE-A/B PROGRAMMER	SLV-99-04-5017-F CIRCUIT BOARD LOGIC-2 ASSY.	PAR 27-75349-903	950416	FACTORY	YES NO		094433
FAILURE MODE-OUT OF TOLERANCE. THE LOGIC-2 ASSY. WAS 78/0 WHEN THE B-1 (RUN) BINARY CIRCUIT OUTPUT WAS PLUS 20 VDC INSTEAD OF PLUS 40 VDC. FAILURE ANALYSIS TESTED THE UNIT SEVERAL TIMES AND COULD NOT MAKE PROBLEM REPEAT. ALL 29 LEADS OF THE TEST SET WERE CHECKED FOR DISCREPANCIES AND NONE FOUND. FAILURE POSSIBLY CAUSED BY OMISSION OF A TEST SET LEAD WIRE TO THE RESET INPUT (PIN 201).							094433
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. PERSONNEL WERE CAUTIONED TO ALWAYS DOUBLE CHECK ALL TEST EQUIPMENT CONNECTIONS.							094433

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI DIP	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B PROGRAMMER	LV-99-04-5018-F CIRCUIT BOARD TRANSISTOR	PAR 27-41394-803	2250 850409	FACTORY	YES NO	294486
FAILURE MODE-ELECTRICAL SHORT. THE LOGIC 3 ASSEMBLY WAS REPORTED FAILED FOR LEAKY TRANSISTORS. THE TRANSISTOR 9-13 (GREEN 2M497) WAS REMOVED AND TESTED. THE COLLECTOR-TO-EMITTER JUNCTION INDICATED A 500 OHM SHORT. THE COLLECTOR-TO-BASE JUNCTION BROKE DOWN AT 18 VDC RATHER THAN THE EXPECTED 80 VDC. TRANSISTOR DISASSEMBLED AND THE CRYSTAL FOUND DEFECTIVE. DEFECT IN THE CRYSTAL MAY HAVE OCCURRED DURING BONDING BY HEAT AND PRESSURE OF THE SOLDER LEAD TO THE CRYSTAL. ANOTHER POSSIBLE CAUSE OF FAILURE COULD BE THE APPLICATION OF A HIGH-CURRENT SHORT-DURATION PULSE.						
CORRECTIVE ACTION-MANUF. PERSONNEL WERE ADVISED TO EXERCISE EXTREME CARE WHEN TROUBLE SHOOTING WITH THE POWER ON. A LBO PAR LV-99-04-8048 WAS ISSUED RECOMMENDING VENDOR TAKE APPROPRIATE MEASURES TO PREVENT DAMAGE TO TRANSISTOR CRYSTAL WHEN BONDING. TRANSISTOR 2M497 DECLARED INACTIVE FOR DESIGN. NO LONGER ON OPL. NOW USE 2M498.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	LV-99-04-5012-P SWITCH FLIP-FLOP-TRANSISTOR	PAR 59-41840-1	1510 850384	FACTORY	YES NO	294486
FAILURE MODE-ELECTRICAL SHORT. THE LOGIC 6 NETWORK FAILED DURING TOP PACKAGE TESTING. TESTING AND TROUBLE SHOOTING REVEALED TRANSISTOR 9-18 WAS SHORT CIRCUITED. 9-18 WAS MARKED 423-744HAT833 HUGHES AND WAS FOUND TO HAVE AN EMITTER-TO-COLLECTOR SHORT CIRCUIT. THE TRANSISTOR FAILURE WAS DUE TO A CURRENT OVERLOADING POSSIBLY INTENSIFIED BY A WEAKENED TRANSISTOR CRYSTAL.						
CORRECTIVE ACTION-CIC 47102 APPROVED FOR MODIFICATION OF TEST SET (P/N 27-3138) TO ADD A CURRENT-LIMITING RESISTOR. PAR LV-99-04-8048 ISSUED RECOMMENDING THE VENDOR IMPROVE THE TRANSISTOR ALLOWING PROCESS TO PREVENT ALLOWING MATERIAL FROM PENETRATING INTO THE EMITTER AND COLLECTOR REGIONS.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	99C3421 CIRCUIT BOARD	UTP-BLT 81-34004-023	850303	60/C	YES NO	89J430
FAILURE MODE-FAILURE DURING OPERATION-DURING BLT Z-AXIS VIBRATION (R/S) ERRATIC SWITCHING OCCURRED DUE TO C-3 CAPACITOR ON A2A1 LOGIC BOARD BREAKING FREE OF BOARD DUE TO SEPARATION OF EPOXY BOND BETWEEN CIRCUIT BOARD AND CAPACITOR. REFER TO FAILURE LOG NUMBER 558-3-019.						
CORRECTIVE ACTION-AMENDMENT N DATED MARCH 31, 1962 TO PRINTED CIRCUIT BOARD PARTS ASSEMBLY SPEC NO. 8-78018 INCORPORATED AS CORRECTIVE ACTION.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	8LV-99-04-5000-F LOGIC-2 CIRCUITBOARD-DIODE	PAR 27-78348-803	850226	FACTORY	YES NO	294486
FAILURE MODE-OUT OF TOLERANCE. THE LOGIC-2 ASST. WAS (R/S) FOR A PLUS 40 VDC OUTPUT WHEN A IS TO 26 VDC WAS EXPECTED. REPORTED FAILURE TRACED TO DIODE CR-2 (P/N 87-19017-002) WHICH HAD A BLOW RECOVERY TIME-WHICH ALLOWED THE DI (RUM)						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PP1 OTH	VENDOR NAME VENDOR PART NO
BINARY TO CHANGE STATUS.						
CORRECTIVE ACTION-DIODE REPLACED IN CRITICAL CIRCUITS SENSITIVE TO RECOVERY TIME BY SPECIAL QUALITY DIODE 99-03101-1.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-98-04-196 CIRCUIT BOARD RESISTOR	FAR 99-41001-903	1960 950217	ETR-J	NO NO	
FAILURE MODE-SHORT (ELECT). DURING PERFORMANCE OF CHECKOUT PROCEDURE 27-28431-BK1, SWITCH 17 EXHIBITED AN INTERMITTENT LOW VOLTAGE OUTPUT. THE FAILURE WAS CONFIRMED AND WAS DUE TO A BURNED-OPEN BRIDGE WIRE RESISTOR IN THE SWITCH 17 OUTPUT CIRCUIT OF CIRCUIT-BOARD (P/N 27-71930-901, 3/4 25D). THE BRIDGE WIRE BURNED-OPEN DUE TO A MOMENTARY EXTERNAL SHORT CIRCUIT TO GROUND.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	ALV-99-04-49277 CIRCUIT BOARD-TRANSISTOR	FAR 27-70923-3	1112 950213	FACTORY	NO NO	
FAILURE MODE-ELECTRICAL OPEN. UNIT WAS REJECTED WHEN IT FAILED TO MEET PARAMETERS OF ITS EOP. FAILURE WAS ATTRIBUTED A FAILED TRANSISTOR AS RESULT OF IMPROPER USE OF TEST EQUIPMENT.						
CORRECTIVE ACTION-RECOMMENDED THAT ALL TEXTRONIX ORCILLOSCOPES BE FITTED WITH UHF-TO-BANANA ADAPTORS, TO PREVENT DAMAGED TRANSISTORS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	69C3421	UTP-PRT 99-41001-903	950204	FACTORY	YES NO	CO/C
FAILURE MODE-OUT OF TOLERANCE. ROLL VOLTAGE PHASE ANGLES READ OUT-OF-TOLERANCE (10+ OR -3.25 DEGREES AND 180+ OR -3.5 DEGREES). THE READINGS SHOULD BE 0+ OR -3.0 DEGREES AND 180+ OR -3.0 DEGREES. REFER TO FAILURE LOG NUMBER 99-3-009.						
CORRECTIVE ACTION-ECP TO RAISE ROLL VOLTAGE PHASE TOLERANCE FROM + OR - 3.0 DEGREES TO + OR -3.9 DEGREES TO ACCOUNT FOR ACCUMULATIVE COMPONENT AND TEST EQUIPMENT TOLERANCE LIMITS TO BE SUBMITTED BY 9/27/66 TO CHANGE SUBSYSTEM SPECIFICATION.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-3007-F POWER SUPPLY CAPACITOR	FAR 81-34800-037	7401 850204	FACTORY	YES 111 NO	894484
FAILURE MODE-ELECTRICAL OPEN. FOUR CAPACITORS IR/D AFTER FAILING VIBRATION TEST. THESE ARE NET-TANTALUM TYPE. FAILURE OF CAPACITORS WERE CAUSED BY REVERSE CURRENT. APPLIED TO THE CAPACITOR.						
CORRECTIVE ACTION-ECF7971 APPROVED BY AIRFORCE TO ELIMINATE REVERSE CURRENT IN A/P PROGRAMMER.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	NZ-99-04-4995F CIRCUIT BOARD-TRANSISTOR	FAR 27-40964-805	3030 850128	FACTORY	NO NO	895886
FAILURE MODE-ELECTRICAL SHORT. UNIT REJECTED WHEN A NO-GO CONDITION OCCURRED FOR THE T-88 BINARY OUTPUT. FAILURE WAS ATTRIBUTED TO A SHORTED TRANSISTOR IN THE EMITTER-FOLLOWER OUTPUT CIRCUIT OF BINARY T-8. EVIDENCE POINTS TO AN INADVERTENT SHORT TO GROUND (WHILE TROUBLESHOOTING) AS BEING THE BASIC CAUSE.						
CORRECTIVE ACTION-UNF-TO-BANANA PLUG ADAPTERS ORDERED FOR ALL TEKTRONIX OSCILLOSCOPES IN THE CHECKOUT AREA.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	NZ-99-04-4994F CIRCUIT BOARD-TRANSISTOR	FAR 27-41445-5	3030 850128	FACTORY	NO NO	895887
FAILURE MODE-ELECTRICAL SHORT. UNIT REJECTED FOR A NO-GO CONDITION FOR THE T-88 BINARY OUTPUT. FAILURE ATTRIBUTED TO A SHORTED TRANSISTOR IN THE EMITTER-FOLLOWER OUTPUT CIRCUIT OF BINARY T-8. AS RESULT OF AN INADVERTENT SHORT-TO-GROUND DURING TROUBLE SHOOTING.						
CORRECTIVE ACTION-UNF-TO-BANANA PLUG ADAPTERS ORDERED FOR ALL TEKTRONIX OSCILLOSCOPES USED IN CHECKOUT AREA.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	FT49517/P4-7CO-01-5301 RESET RELAY	COMPOSITE-B FACT	3301 850125	14 -100	NO NO	895890
FAILURE MODE-FAIL DURING OPERATION. THE GROUND VOLTAGE SENSING RELAY WOULD NOT RESPOND ON INTERNAL POWER. AS INDICATED IN REPORT A493-0003, COMPATIBILITY TESTING HISTORY. LACK OF RESPONSE WAS DUE TO MISMATCHING OF 400 CYCLE GROUND AND INVERTER POWER. THIS RESULTED IN LACK OF PROGRAMMER ZERO.						
SYSTEM EFFECT-OPERATION TOO LONG. PROGRAMMER RESET SIGNAL WAS HELD IN AND RESULTED IN LOSS OF PROGRAMMER ZERO.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-READJUSTED VOLTAGE SENSING RELAY. FINAL SOLUTION CONSISTS OF ISOLATING GROUND AND INVERTER 400 CYCLE POWER.						
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AUTOPILOT-SQUARE-A/B PROGRAMMER	69CE897.2 SWITCH E1	UTP-PRT 69-41001-871	650125	60/C	YES NO		690627
FAILURE MODE-FAILURE DURING OPERATION. DURING PRT Z-AXIS TEMPERATURE-ALTITUDE-VIBRATION, SWITCH E1 WAS IN HIGH STATE (1-27VDC) AT 100 CPS VIBRATION SHEEP. SWITCH E1 SHOULD HAVE BEEN IN LOW STATE (ZERO VDC). REFER TO FAILURE LOG NUMBER 558-3-006.							
CORRECTIVE ACTION-FAILURE COULD NOT BE CONFIRMED. TEAR DOWN INSPECTION AND REPEAT OF VIBRATION TEST (100 CPS PORTIO N) DID NOT REVEAL ANYTHING. PROBABLE CAUSE OF PROBLEM IN TEST EQUIPMENT.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	69CE897.2 RELAY R-35	UTP-PRT 69-73901-010	650125	60/C	YES NO	YES UNION SWITCH NO R35HLP413	690626
FAILURE MODE-FAILURE TO OPERATE AT PRESCRIBED TIME- DURING PRT X-AXIS TEMPERATURE-ALTITUDE-VIBRATION, HIGH POWER SW ITCHES 12, 13, 16, 19, 20 AND E1 DID NOT RESET TO ZERO TIME. RELAY R-35 WAS FOUND TO HAVE WORN PIVOT POINTS. REFER T O FAILURE LOG NUMBER 558-3-007.							
CORRECTIVE ACTION-ECP FOR REDESIGN OF CIRCUIT BOARD TO INCORPORATE NEW RELAY ON AN URGENT (REWORK) BASIS TO BE SUBM ITTED TO 330.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A485-0012/P4-7CD-01-3301 RELAY	COMPOSITE-B FACT	5301 650125	14	YES NO		690582
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. A PERMANENT PROGRAMMER RESET WAS SENT WHEN POWER WAS TRANSFERRED T O INTERNAL. THIS PREVENTED ARMING THE PROGRAMMER. INVESTIGATION REVEALED THE 115V VOLTAGE SENSING RELAY HAD DROPPED OUT DUE TO MISMATCHING OF 400 CYCLE GROUND AND 400 CYCLE INVERTER POWER WHICH CAUSED A MODULATED SIGNAL INTO THE IMP UT OF THE VSR.							
SYSTEM EFFECT-OPERATION DOES NOT START. PROGRAMMER COULD NOT BE ARMED.							
VEHICLE EFFECT-UNKNOWN.							
CORRECTIVE ACTION-RECOMMENDED ISOLATION OF 400 CYCLE GROUND POWER AND 400 CYCLE INVERTER POWER.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	69C3421 CIRCUIT BOARD-CAPACITOR -TANTALUM- 61-34900-037	UTP-PRT	650119	60/C	YES NO	YES ITT NO PAR358	
FAILURE MODE-SHORT-ELECTRIC-ON RETURN OF PRT Y-AXIS, TEMPERATURE-ALTITUDE-VIBRATION (R/S), 55-41001-903 PROGRAMMER S WITCHING FUNCTIONS MALFUNCTIONED DUE TO INTERMITTENT SHORTING OF CAPACITOR ON BOARD ATAL OF POWER SUPPLY MODULE. CAU SED BY A BLUB BROKEN OFF THE DISC OF THE CAPACITOR. REFER TO FAILURE LOG NUMBER 558-3-008.							

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LUNDAIN WETZEL

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-ECP 3480 HAS BEEN APPROVED WHICH CHANGED PROGRAMMER CRITICAL DIGITAL CIRCUITS TO SPRAGUE (VENDOR) ONLY CAPACITOR.							000020
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4982F CIRCUIT BOARD	FAR 27-73348-803	5302 050110	FACTORY	YES NO	60/C	000040
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR HIGH OUTPUT VOLTAGE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	95C3421 CIRCUIT BOARD-CAPACITOR -TANTALUM-	UTP-PRT 01-34900-037	641215	60/C	YES NO	177	000020
FAILURE MODE-SHORT-ELECTRIC-DURING PRT Y-AXIS TEMPERATURE-ALTITUDE-VIBRATION (R/S) 55-41001-903 PROGRAMMER SWITCH IN 6 FUNCTIONS MALFUNCTIONED DUE TO INTERMITTENT SHORTING OF CAPACITOR ON BOARD 47A1 OF POWER SUPPLY MODULE CAUSED BY A SLUG BROKEN OFF THE DIS. OF THE CAPACITOR. REFER TO FAIL/RE LOG NUMBER 938-3-001.							
CORRECTIVE ACTION-ECP 3480 HAS BEEN APPROVED WHICH CHANGED PROGRAMMER CRITICAL DIGITAL CIRCUITS TO SPRAGUE (VENDOR) ONLY CAPACITORS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4982F HIGH-POWER/ASSEMBLY	FAR 27-45848-3	641215	FACTORY	YES NO	60/C	000400
FAILURE MODE-ERRATIC OPERATION. TRANSIENT VOLTAGES WERE GENERATED IN THE ASSEMBLY, WHILE BEING VIBRATED SEPARATELY. CAUSING THE PROGRAMMER TO RESET. NO DISCREPANCIES COULD BE FOUND IN THE UNIT. ADDITIONAL TESTING WHILE BEING VIBRATED SHOWED NO TRANSIENT VOLTAGES OR OTHER DISCREPANCIES. FAILURE WAS NOT CONFIRMED. CONSIDERED TO HAVE ORIGINATED IN THE TEST EQUIPMENT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4982F CIRCUITBOARD-TRANSISTOR	FAR 69-41001-073	5301 641211	ETR	NO NO		
FAILURE MODE-SHORT, ELECTRICAL. NO OUTPUT AT THE LOW POWER SWITCHES. THIS WAS CAUSED BY THE PLUS 14 VOLT D-C SUPPLY VOLTAGE BEING SHORTED TO THE MINUS 14 VOLT D-C SUPPLY IN THE PROGRAMMER. THIS WAS CAUSED BY A SHORT CIRCUITED TRANSISTOR IN SWITCH 7 CIRCUITRY. THE TRANSISTOR WAS DAMAGED WHEN THE 28 VOLT D-C OUT PUT OF SWITCH 11 WAS ERRONEOUSLY COINJECTED TO THE OUT PUT OF SWITCH 7 DUE TO A TEST SET WIRING ERROR.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							993097
	CORRECTIVE ACTION-DESIGN HAVE TAKEN STEPS TO ASSURE THE TEST EQUIPMENT WIRING ERROR WILL NOT RECUR. ALSO A NEW PATC IN BOARD. 27-45880-937, IS BEING FABRICATED FOR ETR SO THAT JUMPER WIRE MODIFICATIONS WILL NOT BE NECESSARY. ON DECEMBER 15, 1964 ETR PERSONNEL WERE INFORMED OF THIS ANALYSIS. THE JUMPER WIRE ERROR HAS BEEN CORRECTED BY THEM.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4973F CIRCUIT BOARD-DIODE	FAR 27-41499-1	5302 641207	FACTORY	YES NO		993039
	FAILURE MODE-ELECTRICAL SHORT. UNIT REJECTED WHEN IT CAUSED ITS NEXT ASSEMBLY CIRCUIT BOARD TO FAIL. FAILURE WAS THE RESULT OF A SHORTED DIODE. CAUSE FOR WHICH COULD NOT BE DETERMINED.						
	CORRECTIVE ACTION-FACTORY PERSONNEL WERE CAUTIONED TO USE GREATER CARE DURING ASSEMBLY, TESTING AND INSPECTION.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	CAPLANE-089/P8-LD-01-04CA HARNES	COUNTDOWN 55-64502	1462 641204	ETR -12000	NO NO	60/C	993039
	FAILURE MODE-FAIL TO CEASE OPERATION. AUTOPILOT FUEL DEPLETION SIGNAL (SLCO) COULD NOT BE DISABLED DUE TO A SHORT IN 65E HARNES 55-64502.						
	SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. AUTOPILOT FUEL DEPLETION SIGNAL/REC'D COULD NOT BE DISABLED.						
	VEHICLE EFFECT-POSSIBLE PREMATURE SUSTAINER ENGINE SHUTDOWN.						
	CORRECTIVE ACTION-SIGNAL WAS REROUTED TO A SPARE CONDUCTOR.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4989F CIRCUIT BOARD-RECTIFIER	FAR 27-41635-3	641150	FACTORY	YES NO		993064
	FAILURE MODE-OUT OF SPECIFICATION. UNIT REJECTED DURING CHECKOUT WHEN SWITCH 13 FAILED TO OPERATE UNDER NO-LOAD. THE FAILURE WAS ATTRIBUTED TO A MARGINAL SILICON CONTROLLED RECTIFIER. THE RECTIFIER DID NOT MEET SPECIFICATION REQUIREMENTS.						
	CORRECTIVE ACTION-RECEIVING INSPECTION TEST PROCEDURES WERE REVISED TO PREVENT ACCEPTANCE OF MARGINAL UNITS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60/AAGU83-001-27/FC-CO-01-0071-007 COMPOSITE-FACTOF	7107 641116	641116		NO NO	60/C	
	FAILURE MODE-FAIL DURING OPERATION. PITCH PROGRAM PROFILE WAS NOISY.						
	SYSTEM EFFECT-ERRATIC OPERATION.						
	VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.						
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18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-AIR SIGNAL ISOLATION AMPLIFIER WAS REPLACED.							090994
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-99-04-101 SWITCH	FAR 39-41001-901	641021	FACTORY	NO		091180
FAILURE MODE-ERRATIC OPERATION. DURING THE AUTO SUSCEPTIBILITY PORTION OF ELECTRO MAGNETIC INTERFERENCE TESTING, SWITCHES 8,10,31, AND 32 OPERATED ERRATICALLY. FAILURE OF THE ERRATIC SWITCHES WAS CONFIRMED, BUT WAS DUE TO A FAULTY TRANSISTOR IN THE PROGRAMMER TEST SET. REPLACEMENT OF THE FAULTY TRANSISTOR IN THE TEST SET ELIMINATED THE ERRATIC SWITCH OPERATION.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION. IT IS RECOMMENDED THAT A DESIGN REVIEW ON THE PROGRAMMER TEST SET BE PERFORMED TO INSURE THE ADEQUACY OF THE DESIGN AND THE COMPATIBILITY OF THE TEST SET TO ALL EXPECTED ENVIRONMENTS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4943F BINARY CIRCUIT BOARD DIODE	FAR 27-41498-1	641024	FACTORY	YES NO		092634
FAILURE MODE-STRUCTURAL. RESISTANCE BETWEEN PINS 3 AND 1 OF 9.3 KILOHMS IS HIGH. MAXIMUM ALLOWED IS 9.14 KILOHMS. PROBABLE CAUSE WAS A CRACKED DIODE. DIODE PROBABLY WAS CRACKED DURING POTTING.							
CORRECTIVE ACTION-A FACTORY QC MEMO STATED DAMAGE APPARENTLY OF THIS FAILURE AND FURNISHED ILLUSTRATING PHOTOGRAPHS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4933F BINARY CIRCUIT BOARD	FAR 27-41498-1	641020	FACTORY	YES NO		092841
FAILURE MODE-OUT OF TOLERANCE. LOW RESISTANCE OF 18 KILOHMS (20-34 MINIMUM REQUIRED) DURING POST CONFORMAL COATING ELECTRICAL TESTS. FAILURE IS ATTRIBUTED USE OF A WRONG VALUE RESISTOR.							
CORRECTIVE ACTION-AN ANALYSIS TEST WAS MADE INDICATING THAT THE FAILED UNIT WAS NOT TESTED AT THE PRE-POTTING LEVEL. IN ANSWER TO FAR SLV-99-04-3993 TEST SET OPERATORS WERE ALERTED TO THE POSSIBILITY OF THIS TYPE OF DISCREPANCY AND WERE REQUESTED TO VERIFY THAT EACH UNIT IS TESTED BEFORE PAPER WORK IS INITIALED. THE FIRST TESTS ARE NOT MONITORED BY QC DUE TO SHORTAGE OF INSPECTORS. NOW, A STAMP IS USED TO INDICATE GOOD CRAFTSMANSHIP.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4910F	FAR 27-41001-843	2890 641015	ETR	YES NO	50%	
FAILURE MODE-ERRATIC OPERATION. SOME PROGRAM FUNCTIONS CONTINUED AFTER ZERO TIME LITE WAS PRESENT. CAUSE NOT KNOWN. DISCREPANCIES FOUND ARE-LOW POWER AND HIGH POWER SWITCHES OCCASIONALLY CAME ON WITH POWER MOMENTARILY OFF. AT DISASSEMBLY FOUR SOCKETS GAVE ERRATIC RESISTANCE, TWO CONTAINED CONTAMINANTS, ONE HAD BURN MARKS ON THE SPRING CLIP. ONE							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CLIP SHOWED SCORE MARKS. WIRES TO TWO JOINTS HAD BROKEN STRANDS WITH NO LOSS OF CONTINUITY. TWO CAPACITORS DISPLAYED MINUTE NON METALLIC CONTAMINANT. SPECIAL TESTS DULCATED THIS FAILURE IF SOCKET ATASPI-21 WAS OPEN CIRCUITED.							991430
CORRECTIVE ACTION-MANUFACTURING PERSONNEL WERE INFORMED OF DISCREPANCIES FOUND IN THIS ANALYSIS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	FTAG492/P2-4CO-01-288 SWITCH	COMPOSITE-B FACT	2880 841013	ETR	YES NO	60/C	997782
FAILURE MODE-ERRATIC OPERATION. DURING PREP TESTS SWITCH 4, VERNIER ENGINE BIAS, SWITCH 7, GUID ENABLE, AND THE 0.2 VOLT STEP (JUST PHASE) Q. THE PITCH PROGRAM WERE FOUND TO BE ACTIVATED ALTHOUGH THE PROGRAMMER CLOCK WAS AT ZERO. L ANDLINE RECORDINGS INDICATED A MOMENTARY LOSS OF PROGRAMMER ZERO 15 MINUTES EARLIER, AND INDICATIONS WERE THAT POWER HAD BEEN INTERRUPTED ONLY TO THE PROGRAMMER.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-PROGRAMMER REPLACED. COMPLETE INVESTIGATION OF AIRBORNE HARNESES, PLUGS, AND X-RAY OF SPLICES WAS PERFORMED. THOROUGH CHECK OF ASSOCIATED AGE PERFORMED. ALL TEST RESULTS WERE SATISFACTORY.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4932F BINARY CIRCUIT BOARD	27-41498-1	194D 841012	FACTORY	YES NO	60/C	992642
FAILURE MODE-OUT OF TOLERANCE. HIGH RESISTANCE BETWEEN PINS 8 AND 9 OF 28.1 KILOHMS. ALLOWABLE VALUE IS 24.88 KILOHMS. FAILURE IS ATTRIBUTED TO A PLUS OR MINUS 5 PERCENT RESISTOR READING PLUS 18.5 PERCENT OF NORMAL. EXACT CAUSE OF FAILURE IS UNKNOWN.							
CORRECTIVE ACTION-CONFIRMED. PER BAR SLV-99-04-3985, TEST SET OPERATORS WERE ALERTED TO THE POSSIBILITY OF THIS TYPE OF DISCREPANCIES AND WERE REQUESTED TO BE SURE EACH UNIT IS TESTED BEFORE THEY ON THE PAPERWORK SINCE FIRST TESTS ARE NOT MONITORED BY INSPECTION. INSPECTION OF THE PRE-POTTING ELECTRICAL TEST WAS SUSPENDED DUE TO SHORTAGE OF INSPECTORS. A CRAFTSMAN SHIP STAMP IS NOW USED TO MAINTAIN GOOD WORKMANSHIP. AN ANALYSIS TEST INDICATED THAT THE FAILED UNITS WERE NOT TESTED AT THE PRE-POTTING LEVEL.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4918F	FAR 27-41001-843	249D 841012	ETR	YES NO	60/C	
FAILURE MODE- PREMATURE OPERATION. COMMAND FOR SUSTAINER ENGINE CUTOFF WAS GIVEN BY THE PROGRAMMER FOR NO APPARENT REASON. THE ZERO TIME LIGHT ALSO WENT OUT. SYMPTOMS COULD NOT BE REPEATED. CAUSE OF FAILURE NOT KNOWN. ANALYSIS REVEALED A HARNESS TRAY SOCKET SPRING CLIP DAMAGED. CONTAMINATED SOCKETS AND A CONTAMINATED TANTALUM CAPACITOR WERE FOUND.							

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SYSTEM SUB-SYSTEM	TLT/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-60/A MANUFACTURING PERSONNEL WERE NOTIFIED OF THIS ANALYSIS AND WERE REQUESTED TO TAKE GREATER CARE IN THE CLEANING AND TESTING OF AUTOPILOT HARNESS TRAYS.							000703
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-99-04-108 CIRCUIT BOARD TRANSISTOR	FAR 55-41001-801	641009	FACORY	YES NO		001493
FAILURE MODE-SHORT (ELECT). DURING THE FAILURE ANALYSIS, CIRCUIT BOARD AB41 (P/N 27-71995-1, S/N 2D) WAS FOUND TO CONTAIN TWO SHORT-CIRCUITED TRANSISTORS. TRANSISTOR Q-11, SPERRY 2N1233 WAS FOUND SHORT CIRCUITED EMITTER-TO-COLLECTOR AND TRANSISTOR Q-12, RAYTHEON 2N637 WAS FOUND SHORT-CIRCUITED BASE TO COLLECTOR. THE TRANSISTORS WERE DAMAGED BY 14V VOLTAGE APPLIED TO THE CIRCUIT BOARD. SINCE THIS CIRCUIT IS NOT USED IN THE PROGRAMMER, THE FAILURE PROBABLY ORIGINATED IN A CIRCUIT-BOARD LEVEL TEST.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION. IT IS RECOMMENDED THAT CIRCUIT BOARD LEVEL TEST SET BE EVALUATED TO ELIMINATE POSSIBLE CAUSES OF OVERVOLTAGING.							001199
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-99-04-108 SWITCH	FAR 55-41001-801	641009	FACORY	NO NO		
FAILURE MODE-EKTRATIC OPERATION. DURING PERFORMANCE OF THE AUDIO SUSCEPTIBILITY PORTION OF AN ELECTROMAGNETIC INTERFERENCE TEST, THE ZERO-TIME INDICATION CYCLED ON AND OFF AT A TWO-CYCLE RATE. SWITCHES 9, 10, 31 AND 32 OPERATED ERRATICALLY. THE FAILURE WAS CONFIRMED AND WAS CAUSED BY A DEFECTIVE TEST SET.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION. IT IS RECOMMENDED THAT A DESIGN REVIEW OF THE TEST SET BE MADE TO INSURE THE ADEQUACY OF THE TEST SET DESIGN AND THE COMPATIBILITY OF THE TEST SET TO ALL EXPECTED ENVIRONMENTS.							002396
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-9D-04-4504F CONAX VALVE SWITCH	FAR 27-72572-3	333D 641009	WTR	YES NO	60/A	
FAILURE MODE-OPEN, ELECTRICAL. DURING PROCEDURE 27-6032-2D THE FUSES IN THE J185 CONAX VALVE DID NOT BLOW. THERE WAS NO VOLTAGE OUTPUT AT PLUG U0J2-PINK, SWITCH 17 OUTPUT. FAILURE IS ATTRIBUTED TO A BURNED-OPEN BRIDGE WIRE AS A RESULT OF EXCESS CURRENT FLOW. ACTUAL CAUSE NOT FOUND.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN BECAUSE FAILURE CAUSE NOT KNOWN. FACTORY PERSONNEL WERE ADVISED TO CHECK EVERY BRIDGE WIRE FOR NICKS AND KINKS BEFORE INSTALLING SLEEVE AROUND RESISTOR. WTR WAS INFORMED OF THIS ANALYSIS.							

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MOBILE DIVISION

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRJ OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	N2-99-04-4811P MOTOR	FAR 93-99900-008	3020 841002	FACTORY YES	YES NO	5408E NO 3A1493
FAILURE MODE-OUT OF TOLERANCE. THE MOTOR DID NOT OPERATE BECAUSE THE MAGNETS WERE MISSING. TIME AND PLACE OF REMOVAL NOT KNOWN.						
CORRECTIVE ACTION-MANUFACTURING PERSONNEL WERE INFORMED OF THIS ANALYSIS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-99-04-178 CIRCUIT BOARD TRANSISTOR	FAR 95-41001-901	940928	FACTORY NO	NO	SPERRY NO 2N1233
FAILURE MODE-SHORT (ELECT). THE PROGRAMMER FAILED DURING A DESIGN PROOF TEST WHEN SWITCH 14 WOULD NOT RESET. SUBSEQUENT TESTING REVEALED THAT THE FAILURE WAS CAUSED BY TRANSISTOR 9-4, SPERRY TYPE 2N1233 ON CIRCUIT BOARD 27-71830, WHICH WAS FOUND TO HAVE A SHORTED CONDITION BETWEEN THE COLLECTOR AND BASE. IT WAS DISCOVERED THAT THE TRANSISTOR FAILED WHEN THE INPUT TEST VOLTAGE INADVERTENTLY DROPPED FROM 28 VDC TO 22 VDC DURING THE TEST, CAUSING THE TRANSISTOR TO CONDUCT EXCESSIVE CURRENT. THE CAUSE OF THE DROP IN POWER SUPPLY VOLTAGE WAS UNKNOWN.						
CORRECTIVE ACTION-ACTION WAS INITIATED TO INSURE THAT THE POWER SUPPLIES USED DURING PROGRAMMER TESTING NEVER DROP BELOW ALLOWABLE TOLERANCES.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	N2-A9-04-4916P SWITCH	FAR 27-84538-3	2970 940923	FACTORY YES	YES YES	50/A
FAILURE MODE-CONTAMINATION. PRE ARM SWITCH 18 WAS ON CONTINUOUSLY THROUGH OUT THE TEST. SWITCH COULD NOT BE RESET. CAUSED BY A METAL WASHER LOOSED BETWEEN TWO RESISTORS OF SWITCH 18. WASHER WAS LEFT IN THE MODULE DURING ASSEMBLY.						
CORRECTIVE ACTION-INSPECTION AND MANUFACTURING PERSONNEL WERE INFORMED OF THIS ANALYSIS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60A/BKFM4-042/L4-701-00-7102 CURRENT LIMITER	FLIGHT	7102 840923	2-4 134	YES NO	
FAILURE MODE-ELECTRICAL OPEN. CURRENT LIMITER IN OUTPUT CIRCUITRY OF PROGRAMMER-HIGH POWER SWITCH NO.2 BURNED OUT AS A RESULT OF LOW IMPEDANCE LOAD WITHIN THE CONAX VALVE AFTER FIRING OF SQUIBS AT STAGING.						
SYSTEM EFFECT-NONE. LOW IMPEDANCE SHORTS ARE EXPECTED WHEN CONAX VALVE SQUIBS FIRE. CURRENT LIMITERS ARE INSTALLED TO PROTECT THE HIGH POWER SWITCHES.						
VEHICLE EFFECT-NONE.						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYS- SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-9D-04-4884-F CAPACITORS C-6 AND C-7	FAR 99-41001-889	640918	FACTORY	YES	ITV NO
<p>FAILURE NOTE-FAILED IN OPERATION. A/P PROGRAMMER ZERO TIME LIGHT INTERMITTENTLY BLINKED FOR 20 MINUTES AFTER AC-DC POWER WAS APPLIED. IT WAS OFF FOR ONE TWO MINUTE INTERVAL. ANOTHER PROGRAMMER EXHIBITED THE INTERMITTENT DURING HYDRAULIC FILL AND BLEED PROCEDURE. EXTENSIVE TEST ANALYSIS ISOLATED THE CAUSE TO C-6 AND C-7 CAPACITORS WHICH FAILED DUE TO APPLICATION OF REVERSE VOLTAGE. OCCURS WHEN ONLY DC POWER AND NO 400 CPS POWER IS APPLIED TO THE PROGRAMMER.</p> <p>CORRECTIVE ACTION-REPLACE THE ATAI POWER SUPPLY ASSEMBLIES CONTAINING NEW CAPACITORS. WTR PERSONNEL INSTRUCTED MEVE M TO APPLY 26 VDC WITHOUT 400 CPS AC POWER. THE PERMANENT SOLUTION TO ELIMINATE THE CAPACITOR REVERSE-VOLTAGE PROBLEM WAS SALES ORDER 312-1-456 OF 22 OCT. 1964 AUTHORIZING ECP 7853 TO CHANGE FROM WET ELECTROLYTE CAPACITORS TO SOLID ELECTROLYTE TANTALUM CAPACITORS WHICH ARE NOT SUBJECT TO THE REVERSE VOLTAGE DAMAGE.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-93-04-4901F CIRCUIT BOARD/CAPACITOR	FAR 27-41847-803	640824	FACTORY	YES	FANSTEEL NO
<p>FAILURE MODE-STRUCTURAL. CAPACITORS C-3 ON TWO HIGH POWER 1 ASSEMBLIES HAD ELECTROLYTE LEAKAGE RESULTING IN CORROSION AND DETERIORATION OF CONFORMAL COATING. THE TANTALUM CORE WAS OFF CENTER CAUSING INDENTATION ON ONE SIDE OF TEFLON O-RING SEAL THUS ALLOWING ROOM FOR LEAKAGE ON THE OTHER SIDE OF THE O-RING SEAL. SILVER CHLORIDE WAS FOUND IN BOTH UNITS. THIS MAY HAVE RESULTED FROM A CHEMICAL REACTION WHICH LIBERATED A GAS WHICH COULD CAUSE INTERNAL PRESSURE AND AID LEAKAGE THRU THE POOR SEALS.</p> <p>CORRECTIVE ACTION- SINCE 10/1/61 CAPACITORS HAVE HAD AN EPOXY COAT OVER THE ANODE END. ITWO UNITS IN QUESTION WERE MADE PRIOR TO THIS TIME). VENDOR ALSO SAID THAT SINCE JANUARY 1964- A SEALANT HAS BEEN ADDED FOR ADDITIONAL PRECAUTION. MOST COMMON CAUSE OF INTERNAL PRESSURE IS APPLICATION OF A REVERSE BIAS VOLTAGE. PER FAR SLV-9D-04-3960 PROGRAMMERS REMARKED TO SURVEY INSTRUCTION 124-64 WILL BE USED FOR FLIGHT ON MISSILES 1460, 2880, 2890 AND 7103. UNITS NOT YET REMARKED TO 9.1. 124-64 ARE TO BE USED TO SUPPORT MISSILE CHECKOUT UP TO FACT TEST. THEN REMARKED UNITS ARE TO BE REWORKED. ECP 3662 CHANGES DESIGN AND VENDOR OF CAPACITOR WAS CHANGED.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-9D-04-4882-F	FAR 27-44538-3	640821	FACTORY	YES	607C NO
<p>FAILURE MODE-FAILED DURING OPERATION. A/P PROGRAMMER DURING VIBRATION TESTING, EXHIBITED A NO-60 ON PITCHOVER LEVEL DURING AUTOMATIC TEST. THE PROGRAMMER TIME WAS 28 SECONDS AHEAD OF AUTOMATIC TEST SET TIME. EXTENSIVE ANALYSIS FAILED TO CONFIRM THE FAILURE. ALL CIRCUITRY ASSOCIATED WITH THE REPORTED FAILURE WAS CHECKED AND NO CAUSES FOUND.</p> <p>CORRECTIVE ACTION-NONE.</p>						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4888-F TRANSISTOR 8-8 2N1233, 334/744	FAR 27-41808-3	940819	FACTORY	YES	HUGHES	890833
FAILURE MODE-ELECTRICAL OPEN. THE PITCH-3 ASSEMBLY CAUSED A NO-60 ON PITCHOVER LEVEL AT 45.1 SECONDS OF AUTOMATIC TESTING OF THE A/P PROGRAMMER. PITCH OUTPUT VOLTAGE WAS 2.8 INSTEAD OF 1.2 VAC. TEST ANALYSIS OF EACH DIODE MATRIX FOUND THE OUTPUT ASSOCIATED WITH TRANSISTOR 8-8 CONDUCTING IN BOTH THE ON AND OFF STATE. THE EMITTER TO BASE OF 8-8, W AS FOUND INTERNETMENTALLY OPEN CIRCUITED DUE TO EROSION OF THE COLLECTOR DOT AND FUSION OF THE COLLECTOR BASE. THE EXACT CAUSE OF THE TRANSISTOR DAMAGE IS UNKNOWN. IT IS PROBABLE A PARTIAL SHORT CIRCUIT OF THE EMITTER BASE EXISTED, AND FURTHER TESTING RESULTED IN OVERHEATING AND DAMAGE.							
CORRECTIVE ACTION-NONE. EXACT CAUSE OF FAILURE IS UNKNOWN.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4847-F SILICON CONTROLLED RECTIFIER/SCR 2 27-72572-3 H663	FAR 27-72572-3	352D 840806	FACTORY	YES NO		890861
FAILURE MODE-FAILED DURING OPERATION. A/P PROGRAMMER FAILED DURING LOW-TEMPERATURE TEST WHEN SWITCH 14 FAILED TO REMAIN IN THE ON-STATE AT 512 SECONDS. TEST ANALYSIS REVEALED THAT FAILURE IS ATTRIBUTED TO AN SCR FAILING TO REMAIN IN THE ON-STATE DURING COLD TEMPERATURE TEST. CAUSE OF SCR FAILURE TO FIRE AT LOW TEMPERATURES IS NOT KNOWN.							
CORRECTIVE ACTION-RAR LV-A9-04-3841 WAS ISSUED REQUESTING P/O TO AUTHORIZE USE OF SPEC 55-04361 FOR REQUIREMENTS TESTING OF THE SCRS. SCRS SELECTED TO MEET THE REQUIREMENTS OF THIS SPEC SHOWED BETTER TURN-ON RESPONSE THAN SCRS TESTED TO 87-85900-060 REQUIREMENTS, EVEN UNDER LOW TEMPERATURES.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-1846-F POWER SUPPLY	FAR 27-72572-3	352D 840806	FACTORY	YES NO		890890
FAILURE MODE-FAILED DURING OPERATION. A/P PROGRAMMER FAILED DURING A LOW TEMPERATURE TEST WHEN SWITCH 17 FAILED TO REMAIN ON AT 512 SECS. WITH 28VDC. TEST ANALYSIS CONFIRMED FAILURE AT LOW TEMPERATURE, BUT NOT AT ROOM TEMPERATURE. FAILURE IS ATTRIBUTED TO AN SCR FAILING TO REMAIN IN THE CONDUCTING STATE WHEN THE CANISTER WAS SUBJECTED TO COLD ENVIRONMENT. CAUSE OF SCRS FAILING TO FIRE AT LOW TEMPERATURES IS UNKNOWN.							
CORRECTIVE ACTION-RELIABILITY ACTION REQUEST LV-A9-04-3841. WAS ISSUED REQUESTING P/O TO AUTHORIZE USE OF SPEC. 55-04361-1 FOR REQUIREMENTS TESTING OF THE SCRS. SCRS SELECTED TO MEET THE REQUIREMENTS OF THIS SPEC. SHOWED BETTER TURN-ON RESPONSE THAN SCRS TESTED TO 87-85900-060. REQUIREMENTS, EVEN UNDER LOW TEMPERATURES.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4888-7	FAR 27-41001-837	840803	FACTORY	NO	60/C	
FAILURE MODE-FAILED DURING OPERATION. A/P PROGRAMMER REPORTEDLY FAILED WHEN A NO-60 OCCURRED ON SW-8 DURING AUTOMATIC TEST. OUTPUT OF SW-8 WAS CHECKED AND FOUND TO BE +1VDC, BUT SHOULD HAVE BEEN -8VDC AT THAT TIME. EXTENSIVE TESTING							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	<p>FAILED TO CONFIRM REPORTED FAILURE. THE FAILURE INDICATED ON BALBORN RECORDINGS DID NOT SHOW AN ACTUAL FAILURE, BUT MERELY A CHARACTERISTIC TO BE EXPECTED OF THE TEST SET AND OF ITS CONDITIONS. THE REPORTED FAILURE WAS PROBABLY CAUSED BY A SMALL VOLTAGE TRANSIENT INSIDE TEST SET APPLIED TO SW-2 CRT, OR BY LOOSE CONNECTION IN SW-2 OUTPUT CRT. EXTREME TO A/P PROGRAMMER.</p>						090967
	<p>CORRECTIVE ACTION-NONE. APPROPRIATE PERSONNEL INFORMED.</p>						093536
AUTOPILOT-SQUARE-A/B PROGRAMMER	N2-98-04-4883-F BINARY ASSY. CIRCUITRY MARKERS	FAR 87-41498-1	840724	FACTORY	YES NO		
	<p>FAILURE MODE-OUT OF TOLERANCE. DURING POST POTTING ELECTRICAL TEST, CAPACITOR C-1 IN EACH BINARY ASSY INDICATED OUT OF TOLERANCE READINGS, ANALYSIS CONFIRMED THE FAILURE. AND IT WAS CAUSED BY INTERNAL SHORT CIRCUIT BETWEEN LEAD WIRE E 4 AND JUMPER WIRE J5 IN EACH BINARY. THE SHORTS WERE DUE TO INADEQUACIES IN THE POTTING OPERATION.</p>						
	<p>CORRECTIVE ACTION-NEW POTTING TECHNIQUES WERE ESTABLISHED AND AN INJECTION-MOLD PLASTIC DIE WAS MADE FOR USE IN PREPARING PLASTIC THROUGHOUT POTTING MOLDS.</p>						092793
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-90-04-4811-F	FAR 99-41000-3	7101 840721	WTR	NO NO	60/C	
	<p>FAILURE MODE-ERRATIC OPERATION. DURING HYDRAULIC FILL AND BLEED TESTS PER PROCEDURE 87-92174, THE VERNIER 1 AND 2 E-MOTORS BIASED TO 29 DEGREES IN THE YAW PLANE WHILE THE PROGRAMMER WAS AT RESET STATE. THERE WAS NO SIGNAL INPUT TO THE AUTOPILOT SERVOAMPLIFIER, AND HYDRAULIC POWER WAS BROUGHT UP TO PRESSURE. THE FAILURE WAS NOT CONFIRMED, IN THE PROGRAMMER BUT WAS TRACED TO THE MAPCHE.</p>						
	<p>CORRECTIVE ACTION-THE MAPCHE ERROR WAS CORRECTED.</p>						093812
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-A9-04-4822F CIRCUIT BOARD TRANSISTOR	FAR 99-41001-833	7103 840713	FACTORY	YES NO		
	<p>FAILURE MODE-FAILED DURING OPERATION. THE PROGRAMMER WAS REJECTED WHEN NO PITCH PROGRAM OCCURRED DURING CHECKOUT. THIS WAS CAUSED BY OVERHEATING OF TRANSISTOR Q6 IN THE 87-79351-803 CIRCUIT BOARD. THE FAILURE OF THE TRANSISTOR WAS DUE TO ITS BEING PARTIALLY TURNED ON WHEN PLUS 25 VDC ONLY WAS APPLIED TO THE PROGRAMMER. IN THIS CONDITION THE TRANSISTOR WAS FORCED TO DISSIPATE EXCESSIVE POWER.</p>						
	<p>CORRECTIVE ACTION-ECP 7708 REMOVED THE TRANSISTOR FROM ALL PROGRAMMERS EID 1690-1 THRU 40.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PMI OTH	VEHICLE NAME PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-89-04-4829-F SWITCH-SCR	FAR 99-41001-833	0071-2 640708	FACTORY	YES	60/C NO	001439
FAILURE MODE-OUT OF TOLERANCE. DURING COMPOSITE TESTS THE OUTPUT VOLTAGE OF SWITCH 19 WAS OBSERVED TO VARY SLIGHTLY. THE TIMING OF THE VARIATIONS CORRESPONDED WITH THE VOLTAGE VARIATIONS OF THE TIME SLOT USED TO DRIVE SWITCH 19. FAILURE WAS DUE TO AN SCR THAT FAILED TO GO INTO CONDUCTION DEEP ENOUGH TO CAUSE ISOLATION OF THE GATE AND CATHODE LEA DS.							
CORRECTIVE ACTION-AS OF 7/1/64 ALL INCOMING LOTS OF SILICON-CONTROLLED RECTIFIERS WILL BE TESTED USING DIGITAL VOLT METERS AS PART OF THE TEST SETUP TO PREVENT MARGINAL BAD SCRS FROM BEING PASSED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AG/MS-001-18/FC-CO-02-0071-002 SCR HIGH SWITCH 19	COMPOSITE-FACTORY 640708	7102 640708	FACTORY	YES	60/C NO	000493
FAILURE MODE-FAILURE DURING OPERATION - THE OUTPUT OF MP SWITCH 19 MONITORED ON MM 2 CHANNEL 19 INDICATED VOLTAGE 3 MPTS BETWEEN SWITCH ACTIVATION AND PROGRAMMER RESET.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. COMPOSITE AND SUBSYSTEM LEVEL RETESTING WAS REQUIRED.							
CORRECTIVE ACTION-IND PROGRAMMER AND REPLACED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-89-04-4829-F AUTOPLOT PROGRAMMER/SWITCH 4	FAR 99-41001-833	640708	FACTORY	YES	NO	003393
FAILURE MODE-FAILED DURING OPERATION-INTERMITTENT MALFUNCTION REPORTEDLY OCCURRED TO SM. 4 RESULTING IN VERNIER ENG INES DURING TO 29 DEGREES. THE A/P PROGRAMMER WAS SUBJECTED TO EXTENSIVE TESTS IN AN EFFORT TO CONFIRM OR DUPLICATE REPORTED FAILURE. THE REPORTED FAILURE COULD NOT BE CONFIRMED. THE TROUBLE WAS POSSIBLY DUE TO A MAPCHE FUNCTION DE FICIENCY.							
CORRECTIVE ACTION-ENGINEERING MODIFICATION OF THE MAPCHE DEFICIENCY WITH THE FOLLOWING INTERIM ACTION. 1. A MAPCHE CARD COMBINATION FOR PALS 11 AND ONE FOR MAB 5 WILL BE PREPARED WHICH WILL PROGRAM MANUAL RESET TO THE FLIGHT. PROGRA MWER AND SIMULTANEOUSLY LIFT THE PROGRAMMER MANUAL STOP. 2. THE CARD WILL BE USED UPON APPLICATION OF AC POWER DURING 6 ANY MAPCHE RUN AS REQUIRED DURING TROUBLE SHOOTING AND/OR RECYCLING. 3. 238A1A4 RESET MODULE SHALL BE DISCONNECTED ON A BOI WHENEVER MAPCHE IS CONNECTED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	COA/BN/64-029/PS-4CO-02-216 AMPLIFIER	COMPOSITE-B FACT	218D 640702	ETR	NO	60/C NO	
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE ACCURATE ROLL PROGRAM COULD NOT BE SET INTO PROGRAMMER DUE TO DEFECT IVE AGE ISOLATION AMPLIFIERS.							

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SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							897488
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-CHANGED GROUND ISOLATION AMPLIFIERS.							898618
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-88-04-4805F CLOCK-BINARY-WIRING	FAR 89-41001-833	7101 840830	FACTORY	YES NO		
FAILURE MODE-CONTAMINATION. DURING FACTORY ELECTRICAL TESTS THE DIGITAL CLOCK STOPPED AT 284.381 SECONDS AND SWITCHES 3-5, 9, 16, 19, 31, AND 32 GAVE NO-GO INDICATIONS. ON RERUNS THIS INDICATION OCCURRED SEVERAL TIMES, DISAPPEARED, AND DID NOT RECUR. FAILURE WAS DUE TO A SHORT CIRCUIT OF A BINARY IN THE CLOCK CIRCUIT. THE SHORT WAS DUE TO A SLAB OF GOLD SOLDER BETWEEN THE CATHODE OF DIODE CR-1 AND THE ANODE OF CR-3.							
CORRECTIVE ACTION-BEGINNING FEBRUARY 14, 1964 FACTORY INSPECTION PERSONNEL WERE USING 0.020 INCH GAGES AS AN INSPECTION AID TO INSURE GAP REQUIREMENTS BETWEEN LAND TERMINALS.							898608
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-80-04-4812-F	FAR 89-41001-833	7101 840822	WTR	YES NO	50/C	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING SYSTEM TESTS NO PITCH PROGRAM WAS OBSERVED ON THE LANDLINE RECORDER. A RERUN WAS PERFORMED, USING A VOLTMETER AT THE UMBILICAL JUNCTION BOX AND THE FAILURE WAS CONFIRMED. THE LANDLINE RECORDING OF THE FAILURE SHOWED SHORT DURATION, LOW AMPLITUDE SPIKES OCCURRING AT 70.103, 120, AND 137.9 SECONDS, WHICH CORRESPOND TO CERTAIN PITCHPROGRAM LEVEL CHANGE TIMES.							
CORRECTIVE ACTION-NONE. FAILURE COULD NOT BE TRACED TO THE PROGRAMMER AND THE CAUSE COULD NOT BE DETERMINED.							894863
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-88-04-4800-F CIRCUIT BOARD TRANSISTOR	FAR 89-41001-883	1510 840817	FACTORY	YES NO		
FAILURE MODE-ELECTRICAL SHORT. DURING FACTORY FINAL CHECKOUT THERE WAS NO OUTPUT FROM SWITCH 28 (OPEN VENT VALVE). FAILURE WAS DUE TO AN OPEN 6-12 TRANSISTOR. THE TRANSISTOR WAS PROBABLY BURNED OPEN BY A SHORT CIRCUIT EXTERNAL TO THE PROGRAMMER.							
CORRECTIVE ACTION-50/C FACTORY PERSONNEL WERE INFORMED OF THE RESULTS. NO OTHER ACTION COULD BE TAKEN.							

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AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-AS-04-4787-F CONNECTOR	FAR 89-41001-833	7102 840616	FACTORY	NO	60/C	894236
FAILURE MODE-FAILED DURING OPERATION. DURING SYSTEMS CHECKING IN THE FINAL CHECKOUT AREA THE PITCH PROGRAM VOLTAGE DROPPED TO ZERO VOLTS. REPORTED TO BE CAUSED BY A LOOSE UNBILICAL CONNECTOR ON TEST EQUIPMENT CONNECTOR.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. CONNECTORS WERE TIGHTENED IN THE FINAL CHECKOUT AREA.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	69A248 ARM-SAFE SWITCH	UTP-PET 27-02347-1	840616	60/C	YES	KINETICS NO M834-1	893889
FAILURE MODE-OUT OF TOLERANCE. READINGS WERE OUT OF TOLERANCE DURING CONTACT RESISTANCE TEST OF P.E.T. TEST. SIMILAR FAILURES ON SAME PART ON 84/8/18 AND 84/8/23. REFER TO FHR 339. READINGS WERE FROM 200 TO 325 MILLIVOLTS (SPEC. REQUIREMENT IS 200 MILLIVOLTS MAX.).							
CORRECTIVE ACTION-ECF 7690 (TO CHANGE MAXIMUM ALLOWABLE VOLTAGE DROP TO 300 MILLIVOLTS) WAS DISAPPROVED BY THE CUSTOMER. CIC 26387 WILL BE RESUBMITTED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	LV-90-04-4821F ACCELEROMETER RELAY	FAR 27-04099-803	840616	MTN	NO	EDCLIFF	893213
FAILURE MODE-OUT OF TOLERANCE. THE ACCELEROMETER WAS REJECTED BECAUSE THE OUTPUT RELAY DROPPED OUT TOO SLOWLY. NO FAILURE WAS CONFIRMED BY FAILURE ANALYSIS. THE FAILURE WAS ATTRIBUTED TO MACHINE PROGRAM DEFICIENCIES.							
CORRECTIVE ACTION-NONE. AT THE TIME OF THIS REJECTION ONLY ONE LAUNCH REMAINED USING THIS PROGRAM.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-89-04-4833-F DIODE IM843 IN SAFE LINE	FAR 27-43901-803	840609	FACTORY	YES	NO	893381
FAILURE MODE-SHORT ELECTRICAL. THIS PROGRAMMER REPORTEDLY FAILED WHEN AN EXPECTED SUSTAINER CUTOFF SIGNAL WAS NOT PRESENT ON PLUG P-4 PIN-8. DIODE IM843 IN THE SAFE LINE WAS FOUND OPEN CIRCUITED. EXPERIENCE SHOWS CAUSE OF THIS FAILURE IS AN INADVERTENT SHORT CIRCUIT OF THE SWITCH OUTPUT TO GROUND.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION COULD BE INITIATED SINCE EXACT CIRCUMSTANCES OF FAILURE COULD NOT BE FOUND. FACTORY PERSONNEL WERE CAUTIONED CONCERNING THE EFFECT OF SHORTING THE OUTPUT TO GROUND.							

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AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-9D-04-4792-F SWITCH-SCR	FAR 88-41001-833	7101 840503	WTR	YES NO		004280
FAILURE MODE-OUT OF TOLERANCE. DURING BOOSTER CHECKOUT THE BOOSTER JETTISON SWITCH EXHIBITED NO-GAS INTERMITTENTLY. SWITCH 13 TRIGGERED IN THE CORRECT TIME SEQUENCE BUT TURNED OFF WHEN MAPCHE CARD 24 WAS INSERTED. FAILURE WAS DUE TO SWITCH 3CR3 BEING TEMPERATURE SENSITIVE AND MARGINAL IN REGARDS TO DESIGN PARAMETERS.							
CORRECTIVE ACTION-60/C RECEIVING INSPECTION PROCEDURES WERE REVISED TO REQUIRE USE OF DIGITAL VOLTMETER TO ENSURE M ARGINAL 3CR3 WILL NOT BE USED AS A 27-07593-1 PART NUMBER. ECP 7791 WAS IMPLEMENTED REQUIRING SCR 53-04361-1 USED AS SWITCH 13 ON SLV-3 PROGRAMMERS.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	89A287.2 ACCELEROMETER SWITCH	UTP-ETT 27-04099-1	840801		YES EXCLIFF NO		003870
FAILURE MODE-OUT OF SPECIFICATION. DURING THE DETAILED EXAMINATION OF PRODUCT, THE FOLLOWING DISCREPANCIES WERE NOT ED-S/M D064 HAD THE BELLONS MISSING. S/M D077 HAD THE BELLONS SEPERATED FROM THE SEALING DISC. AND O-RING ASSEMBLY. BOND WAS LOST AT THE DISC.-REFER TO PR312.							
CORRECTIVE ACTION-UNKNOWN. QUALITY CONTROL PROBLEM. HOWEVER, VENDOR HAS SUCCESSFULLY COMPLETED TESTS WITH BELLONS R ENOVED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AGU93-001-14/FC-CO-01A-0502-006 TRANSISTOR	COMPOSITE-FACTORY 156D 840316		FACTORY	NO NO		003278
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. PROGRAMMER SWITCH 28 (OPEN VENT VALVE). CONDUCTED AT ALL TIMES AND COULD NOT BE RESET. TRANSISTOR 2H1233 OF SWITCH 28 WAS FOUND DEFECTIVE. INVESTIGATION REVEALED THAT DIODE 1 M482 (SHUNTING DIODE) ACROSS THE COIL OF RELAY K744 (AGE) WAS OPEN. THE RESULTANT VOLTAGE, CAUSED BY THE COLLAPSING FIELD OF THE RELAY AT RESET WAS SUFFICIENT TO DAMAGE THE AIRBORNE TRANSISTOR. THE AGE DIODE WAS PRIMARY FAILURE.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE RETESTING WAS REQUIRED.							
CORRECTIVE ACTION-THE AGE RELAY K744 AND THE AIRBORNE PROGRAMMER WERE REPAIRED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	LV-49-04-4793-F SWITCH-FLIP F. OF DIODE	FAR 88-41001-877	156D 840318	FACTORY	YES NO		
FAILURE MODE-ELECTRICAL OPEN. DURING THE MISSILE FINAL CHECKOUT THE OPEN VENT VALVE INDICATOR LIGHT WOULD NOT EXTINGUISH AFTER THE ERASE COMMAND WAS GIVEN. FAILURE WAS DUE TO AN OPEN 812, SPERRY 2N 1233 OUTPUT TRANSISTOR BELIEVED TO BE CAUSED BY AN OPEN CIRCUITED DIODE ACROSS THE COIL OF RELAY K744.							

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	CORRECTIVE ACTION-60/C MODIFIED THE TEST PROCEDURE AT-83-0325-008-12 BY ADDING AN ELECTRICAL CHECK OF DIODES CR 729 TO CR 742 AND CR744 USED IN THE CHECKOUT PANEL AS PART OF THE VALIDATION PROCEDURE.						094237
AUTOPLOT-SQUARE-A/B PROGRAMMER	6942897-1 CIRCUIT BOARD-CAPACITOR C-2 LUN-	UTP-PRT -TANTA 91-34900-037	840513	60/C	YES ITT NO PAS296		094284
	FAILURE MODE-SHORT-ELECTRIC-DURING PRT X AND Z-AXIS VIBRATION, PROGRAMMER RESET PREMATURELY. INTERMITTENT SHORTING OF CAPACITOR (ITT,PAS296) ON BOARD ATAL OF POWER SUPPLY MODULE DUE TO BLUS BEING BROKEN OFF FROM DISC. REFER TO PRR 1448.						
	CORRECTIVE ACTION-SCP 3480 HAS BEEN APPROVED WHICH CHANGED PROGRAMMER CRITICAL DIGITAL CIRCUITS TO SPRAGUE ONLY CAP ACTORS.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	6942897-1 CIRCUIT BOARD CAPACITOR C-1 LUN-	UTP-PRT -TANTA 91-34900-036	PA4008 840502	60/C	YES ITT NO		094283
	FAILURE MODE-SHORT-ELECTRIC-DURING PRT Z AND Y-AXIS VIBRATION PROGRAMMER RESET PREMATURELY. INTERMITTENT SHORTING I N CAPACITOR (ITT,PA4008) ON BOARD 1842 OF RESET LOGIC BOARD. REFER TO PRR 1448.						
	CORRECTIVE ACTION-SCP 3480 HAS BEEN APPROVED WHICH CHANGED PROGRAMMER CRITICAL DIGITAL CIRCUITS TO SPRAGUE ONLY CAP ACTORS.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	LV-99-24-4766C CIRCUIT BOARD TRANSISTOR	FAR 95-41038-803	840430	FACTORY	YES NO		093582
	FAILURE MODE-OUT OF TOLERANCE. DURING SUB-ASSEMBLY TESTING, THE LOGIC NETWORK WAS FOUND TO HAVE LOW GAIN DUE TO DEF ECTIVE 8-12 AND 8-14 TRANSISTORS.						
	CORRECTIVE ACTION-NONE. CAUSE NOT DETERMINED.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	LV-99-04-4769-P TRANSISTOR	FAR 95-41001-877	1960 840489	FACTORY	YES NO		
	FAILURE MODE-STRUCTURAL. DURING INTEGRATED TESTS IN THE FINAL CHECK OUT AREA, THE OUTPUT FROM SWITCH 20 WAS EITHER PRESENT AT ALL TIMES OR NEVER PRESENT. CAUSE OF FAILURE WAS TRACED TO TWO DAMAGED TRANSISTORS (8-12 AND 8-13) THAT W ERE APPARENTLY INADVERTENTLY OVERLOADED DURING TESTING.						

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CORRECTIVE ACTION-PERSONNEL IN CHECKOUT AREA WERE APPRISED OF FAILURE CAUSE AND WERE CAUTIONED TO EXERCISE EXTREME CARE WHEN TROUBLESHOOTING TO AVOID DAMAGED EQUIPMENT.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4779F TRANSISTOR	FAR 27-41435-801	640427	FACTORY		SPERRY
FAILURE MODE-ERRATIC OPERATION. THE PITCH 2 ASSEMBLIES WERE REJECTED FOR EXHIBITING NO-GO ON THE FACTORY AUTOMATIC TEST SET. TROUBLE WAS TRACED TO SPERRY REPLACEMENT TRANSISTORS FOR THE HUGHES 2N1233 TRANSISTORS. THE ELECTRICAL CHARACTERISTICS OF THE SPERRY 2N1233 TRANSISTORS WERE INCOMPATIBLE WITH THE AUTOPILOT PROGRAMMER SWITCHING CIRCUITRY.						
CORRECTIVE ACTION-607C SURVEYED ALL BOOSTER PROGRAMMERS AND RETURNED THEM FOR REWORK. ALL FACTORY ASSEMBLIES WERE R EWORKED TO REPLACE THE SPERRY TRANSISTORS WITH HUGHES.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	3LV-99-04-4793 BINARY CIRCUIT BOARD WIRING	FAR 27-41496-1	36D 640422	FACTORY		GO/C
FAILURE MODE-OUT OF TOLERANCE. DURING THE SUB-ASSEMBLY CHECKOUT RESISTANCE R-4 READ 10.0 K OHMS BUT SHOULD HAVE READ LESS THAN 9.14 K OHMS. FAILURE WAS DUE TO A SOLDERLESS CONNECTION AT ONE CONNECTOR OF RESISTANCE R-4.						
CORRECTIVE ACTION-607C MANUFACTURING AND INSPECTION PERSONNEL WERE APPRISED OF THE UNSOLDERED CONNECTION AND RESUES TED TO TIGHTEN INSPECTION CONTROL.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	FR27-3J45 CHOKER-TRANSFORMER TYPE	UTP-PET 27-04160-1	640416	GO/C	YES A.C.-ELECTRONIC NO S AC3477	891802
FAILURE MODE-STRUCTURAL. DURING THE VISUAL INSPECTION FOLLOWING THE THERMAL SHOCK TEST, PARA. 4.7, A SERIES OF MINUTE CRACKS WERE OBSERVED ON ONE SIDE OF THE TEST SPECIMEN (LOT 18). THIS WAS CAUSED BY THE VENDOR NOT USING THE BEST MANUFACTURING METHODS AND THE PROPER POTTING TECHNIQUE.						
CORRECTIVE ACTION-THIS FAILURE WAS CONSIDERED MINOR AND PET TESTING WAS CONTINUED. THE VENDOR WAS NOTIFIED OF THE PROBLEM AND TOOK STEPS TO RECTIFY THE PRODUCTION METHODS AND TOOLING. RTP. PR 654-2-250.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4778-F D.C. MOTOR	FAR 27-41893-3	640415	FACTORY	YES SLORE NO	891803
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME-DURING ASSEMBLY TESTING OF THE REMOTE SET, THE DC MOTOR FAILED WHILE TESTING THE TRAVEL OF THE RELUCTANCE TRANSDUCER, WHICH VARIES THE ROLL SYNO EXCITATION VOLTAGE DURING THE MISSILE S ROLL PROGRAM.						

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CORRECTIVE ACTION-FAILURE NOT CONFIRMED. GO/C ISSUED A DEPARTMENTAL INSTRUCTION DIRECTING PERSONNEL TO VERIFY FAILURE IN COMPONENT AFTER IT HAS BEEN REMOVED FROM THE SUB ASSEMBLY. IF FAILURE CAN NOT BE CONFIRMED IN THE COMPONENT, THEN THE ENTIRE SUB-ASSEMBLY SHOULD BE FORWARDED FOR FAILURE ANALYSIS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4754-F AMPLIFIER-SERVO TRANSIST	FAR 27-72563-3	3500 840410	WTR	YES NO		
FAILURE MODE-CONTAMINATION. DURING PROCEDURE CHECKOUT IN THE MISSILE ASSEMBLY AREA BOOSTER 1 AND 2 ENGINES WENT HARD OVER POSITIVE IN THE PITCH AND YAW PLANE BETWEEN THE TIME THE SUSTAINER ENGINE WAS MALLED AND THE FLIGHT PROGRAMME R WAS ZEROED. UPON FLIGHT RESET, THE BOOSTER ENGINES RETURNED TO NULL. FAILURE WAS DUE TO A LEAKY 8-2 TRANSISTOR THAT WAS CONTAMINATED.							
CORRECTIVE ACTION-RAYTHEON COMMERCIAL-TYPE 2N2924 TRANSISTORS WERE PURGED DURING MARCH 1964 IN ALL ASTRONAUTIC STORES. THE AUTOPILOT SERVO AMPLIFIER WILL ALSO BE SUBJECTED TO A TWO HOUR WARMUP PERIOD TO DETECT HEAT-SENSITIVE LEAKY TRANSISTORS IN THE MANUFACTURING FINAL CHECKOUT AREA BEFORE ELECTRICAL ACCEPTANCE TESTING IS PERFORMED. FACTORY TEST MODIFIED TO DETECT DEFECTIVE TRANSISTORS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4781-F ARM/SAFE SWITCH	FAR 27-02047-1	840402	FACTORY	NO	KINETICS NO	
FAILURE MODE-SHORT (ELECTRICAL). DURING FACTORY SUBASSEMBLY TESTING THE ARM/SAFE SWITCH CONTACTS X-1, X-2 AND X-3 WERE SHORT CIRCUITED TO EACH OTHER. THIS WAS DUE TO SHORT CIRCUITED CAPACITORS IN THE RFI NETWORK. OPEN CIRCUIT DIODES WERE ALSO FOUND ACROSS THE MOTOR SWITCH. CAUSE DUE TO APPLICATION OF 28 VDC IN REVERSE POLARITY. TWO MANUFACTURING AREA WORK BENCH 28 VDC OUTLETS WERE FOUND CONNECTED IN REVERSE POLARITY.							
CORRECTIVE ACTION-GO/C CHECKED ALL 28 VDC OUTLETS IN THE AREA AND RECONNECTED THOSE FOUND IN REVERSE POLARITY.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4786F	FAR 27-41001-633	840328	WTR		GO/C	
FAILURE MODE-FAIL DURING OPERATION. THE PROGRAMMER STOPPED AT 189.999 SECONDS DURING CHECKOUT IN THE LABORATORY. LA NOS 9, 19, 26, AND 321 N/D NO GO INDICATION.							
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.							

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AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-98-04-473A-F CIRCUIT BOARD WIRING	PAR 27-41496-1	840324	FACTORY	YES 60/C NO	098870
FAILURE MODE-ELECTRICAL SHORT. BINARY ASSEMBLY WAS REJECTED WHEN IMPEDENCE MEASUREMENT WAS 37 KILOHMS INSTEAD OF 64 KILOHMS. FAILURE WAS DUE TO SHORTED WIRING IN THE POTTED MODULE.						
CORRECTIVE ACTION-60/C TOOK CORRECTIVE ACTION ON DECEMBER 1, 1964, INCORPORATING INTO PRODUCTION USE A NEW PLASTIC THROW AN POTTING MOLD PROCESS FOR MANUFACTURING BINARY ASSEMBLIES. THIS PROCESS WILL PREVENT TERMINAL LEAD ENDS FROM TOUCHING EACH OTHER OR ADJACENT WIRES DURING POTTING.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	99A2897-1 CIRCUIT BOARD CAPACITOR	UTP-PRT	840313	60/C	YES NO	098822
FAILURE MODE-STRUCTURAL-DURING PRT, PRT, AND 3LT TEMPERATURE-VIBRATION, POWER SWITCHES INTERMITTENTLY ON AND OFF. ALSO, CERTAIN DISCRETES WERE RECEIVED LATE. CAPACITOR C-8 SHEARED OFF AT BODY FROM PINS 6 AND 7 OF RELAY 2-3 ON CIRCUIT BOARD USABAI. REFER TO PRR 144A.						
CORRECTIVE ACTION-AN ECP FOR REDESIGN OF USABAI CIRCUIT BOARD TO BE SUBMITTED TO ASD ON AN URGENT (REWORK) BASIS BY 9/7/65.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	99A2897-1 CIRCUIT BOARD CAPACITOR	UTP-PRT	840313	60/C	YES NO	098821
FAILURE MODE-OPEN-ELECTRIC-DURING PRT, PRT AND 3LT TEMPERATURE-VIBRATION, POWER SWITCHES INTERMITTENTLY ON AND OFF. ALSO, CERTAIN DISCRETES WERE RECEIVED LATE. CAPACITOR C-1 HAD A BROKEN LEAD AT PIN 7 OF RELAY 2-3 ON BOARD USABAI. REFER TO PRR 144A.						
CORRECTIVE ACTION-AN ECP FOR REDESIGN OF USABAI CIRCUIT BOARD TO BE SUBMITTED TO ASD ON AN URGENT (REWORK) BASIS BY 9/7/65.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	99A2897-1 RELAY 2-3	UTP-PRT 86-73200-087	840313	60/C	YES UNION SWITCH NO SIGNAL X33HLP08	
FAILURE MODE-FAILURE DURING OPERATION-DURING PRT, PRT AND 3LT TEMPERATURE-VIBRATION, POWER SWITCHES INTERMITTENTLY ON AND OFF. ALSO, CERTAIN DISCRETES WERE RECEIVED LATE. THE RELAY ROTOR FOR SWITCH 11 WAS HANGING UP. REFER TO PRR 144A.						
CORRECTIVE ACTION-AN ECP FOR REDESIGN OF USABAI CIRCUIT BOARD TO BE SUBMITTED TO ASD ON AN URGENT (REWORK) BASIS BY 9/7/65.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
9/7/85.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	6942697.1 CIRCUIT BOARD-CAPACITOR C-8	UTP-PRT 81-31300-037	640313	50/C	YES NO	PANSTEEL NO HP258701
FAILURE MODE-SHORT-ELECTRIC-DURING PAT, PRT AND SLT TEMPERATURE-VIBRATION, POWER SWITCHES INTERMITTENTLY ON AND OFF. ALSO, CERTAIN DISCRETES WERE RECEIVED LATE. ALL INTERMITTENT SHORT WAS FOUND IN TANTALUM CAPACITOR C-8 ON BOARD A7A. THE CENTER HOLE OF THE TANTALUM DISC WAS 5/32 INCH. REFER TO FRA 144A.						
CORRECTIVE ACTION-ECF FOR REDESIGN OF CIRCUIT BOARD US9A81 AND INCORPORATE NEW RELAY TO BE SUBMITTED TO SSO ON AN URGENT (REWORK) BASIS BY 9/7/85.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	6942697.1 RELAY X-3	UTP-PRT 86-73900-067	640313	50/C	YES NO	UNION SWITCH & SIGNAL R35HLP68
FAILURE MODE-OPEN-ELECTRIC-DURING PAT, PRT AND SLT TEMPERATURE-VIBRATION, POWER SWITCHES INTERMITTENTLY ON AND OFF. ALSO CERTAIN DISCRETES WERE RECEIVED LATE. THE RELAY (ON BOARD US9A81) TO SWITCH 11 HAD A BROKEN COIL LEAD. REFER TO FRA 144A.						
CORRECTIVE ACTION-AN ECF FOR REDESIGN OF US9A81 CIRCUIT BOARD INCLUDING NEW RELAY TO BE SUBMITTED TO SSO ON AN URGENT (REWORK) BASIS BY 9/7/85.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	6942697.1 CIRCUIT BOARD-RESISTOR R-39	UTP-PRT	640313	50/C	YES NO	
FAILURE MODE-FAILURE DURING OPERATION-DURING PAT, PRT AND SLT TEMPERATURE-VIBRATION POWER SWITCHES INTERMITTENTLY ON AND OFF. ALSO, CERTAIN DISCRETES WERE RECEIVED LATE. RESISTOR R-39 WAS MISSING FROM CIRCUIT BOARD US9A81 HIGH POWER 2 ASSEMBLY. REFER TO FRA 144A.						
CORRECTIVE ACTION-MANUFACTURING WAS NOTIFIED OF PROBLEM.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SLV-89-04-47887 SWITCH, HIGH POWER THREE	FAR 27-61440-813	640303	FACTORY	YES NO	
FAILURE MODE-OUT OF TOLERANCE. THE HIGH POWER THREE ASSEMBLY WAS REJECTED FOR EVIDENCE OF OVERHEATING ON THE CIRCUIT BOARD AND THE WIRES CONNECTED TO PINS 1 AND 7 OF RELAY K1. NO FUNCTIONAL FAILURE WAS REPORTED.						
CORRECTIVE ACTION-DEFICIENCIES IN THE 85-41001-819 PROGRAMMER WERE KNOWN TO CAUSE THIS OVERHEATING. THESE DEFICIENCIES						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
IES WERE CORRECTED BY ECP 7047 WHICH CREATED THE DASH 923 PROGRAMMER.							093943
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4719C FILTER/DIODE	FAR 27-41802-801	840302	FACTORY	YES NO		094082
FAILURE MODE-FAIL DURING OPERATION. THE FILTER WAS REJECTED BECAUSE DIODE CR-7 WAS BURNED.							
CORRECTIVE ACTION-NONE. NO FAILURE ANALYSIS WAS PERFORMED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	27-3362 TRANSFORMER	UTP-PET 27-04170-3	840302	60/C	YES NO	CAL. MAG. CORP. NO 8C703A	091201
FAILURE MODE-OUT OF TOLERANCE. DURING VISUAL INSPECTION TEST THERE APPEARED TO BE 1/16 IN THE POTTING COMPOUND AROUND BOTH INSERTS. THIS WAS CAUSED BY POOR POTTING TECHNIQUE AND MARGINAL QUALITY CONTROL BY THE VENDOR. THE SPECIFIC CAUSE OF THE FAILURE IS NOT KNOWN.							
CORRECTIVE ACTION-THE VENDOR WAS CONTACTED BY CAR 8340-64 AND RELIED THAT THE CAUSE OF THE FAILURE WAS PROBABLY NOTHING OF THE EXOTIC HOLDING COMPOUND, THEREBY CAUSING VERY SMALL VOID'S AROUND THE INSERTS AND IN THE POTTING MATERIAL. THE VENDOR STATED THAT THE HOLDING MATERIAL WILL BE GIVEN EXTRA VACUUM CYCLING BEFORE BEING INTRODUCED TO THE MOLDS 60/C RECEIVING INSPECTION WAS CONTACTED BY AWO TO PERFORM CLOSER VISUAL INSPECTION OF ALL MAGNETIC COMPONENTS TO PREVENT OUT OF TOLERANCE CONDITIONS BEING ACCEPTED. REF. 834-2-273 SUPP A.							093871
AUTOPILOT-SQUARE-A/B PROGRAMMER	89A2697.2 ACCELEROMETER SWITCH	UTP-ETT 27-04099-1	840228	60/C	YES NO	EDCLIFF NO 104892-1	
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING ETT, VIBRATION SWITCH FAILED TO ACTUATE IN SELF-TEST DURING 8TH X AXIS VIBRATION SWEEP. SWTIC ALSO FAILED IN 6TH X AXIS SWEEP, 3RD Y AXIS SWEEP AND 11TH Y AXIS SWEEP ON 840309, 840318, AND 840418 DUE TO OVERHEATING OF SELF-TEST COIL. REFER TO PRR 208.							
CORRECTIVE ACTION-ECP 7897 TO MODIFY SELF-TEST CIRCUIT.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	8LV-99-04-4704-P CIRCUIT BOARD CONNECTOR	FAR 27-41412-818	840228	FACTORY	YES NO	60/C NC	
FAILURE MODE-CONTAMINATION. THE LOW-POWER SWITCH MODULE SWITCH Y GAVE A NO-GO AT ZERO TIME. ANALYSIS ATTRIBUTED THE FAILURE TO CONTAMINATED PINS OF THE CIRCUIT BOARD CONNECTOR. CONTAMINATION OF PINS WAS CAUSED BY PRESSING STYROFOAM TO SET PINS TOO SOON AFTER CLEANING WITH CHLOROFORM.							

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DIFFICULTIES REVIEW-AUTOPLOIT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-INSPECTION PERSONNEL WERE RE-INSTRUCTED TO CONDUCT A ONE-HUNDRED PERCENT VISUAL INSPECTION OF MOO USE PLUGS FOR CONTAMINATION PRIOR TO STORAGE OR ASSEMBLY INTO THE TOP PACKAGE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60/AA6083-001-8/FC-CO-02-0013-016 SWITCH	COMPOSITE-FACTORY 2450 640220	YES 60/C NO			
FAILURE MODE-ERRATIC OPERATION. HIGH POWER SWITCH 13, MONITORED ON CHANNEL 8 OF MIDWESTERN RECORDER NO. 2, INDICATE D BINARY CLOCK PULSES AFTER ACTIVATION AT STAGING PLUS 3.1 SECONDS.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE RETESTING REQUIRED.						
CORRECTIVE ACTION-REPLACED PROGRAMMER.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	69A3044 ARM-SAFE SWITCH	UTP-PET 27-08047-1	640220	60/C	YES KINETICS NO M034-1	
FAILURE MODE-OUT OF TOLERANCE. READING OF CONTACT RESISTANCE WAS OUT OF SPEC. SIMILAR FAILURES ON SAME PART ON 6402 24 REFER TO PAR 237. LARGEST OUT OF TOLERANCE READING WAS 330 MILLIVOLTS (SPEC. REQUIREMENT IS 200 MILLIVOLTS).						
CORRECTIVE ACTION-ECP 7690 (TO CHANGE MAXIMUM ALLOWABLE VOLTAGE DROP TO 500 MILLIVOLTS) WAS DISAPPROVED BY THE CUS TOMER. CIC 26397 WILL BE RESUBMITTED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-49-74-4694-F SILICON CONTROL RECTIFIERS	FAR 27-44336-3	2450 640216	FACTORY	YES NO	
FAILURE MODE-OUT OF TOLERANCE. TWO PROGRAMMERS WERE REJECTED DURING CHECKOUT BECAUSE OF BINARY CLOCK PULSES APPEAR ING ON THE OUTPUT SWITCH 14 OF ONE PROGRAMMER AND SWITCH 13 OF THE REPLACEMENT PROGRAMMER. THESE BINARY PULSES WERE 8 MILL IN AMPLITUDE (ABOUT 0.8 VOLTS PEAK-TO-PEAK). ANALYSIS ATTRIBUTED THE FAILURE TO SILICON CONTROL RECTIFIERS WHIC H HAD SLIGHTLY HIGH FORWARD VOLTAGE DROPS IN THEIR CONDUCTING STATES.						
CORRECTIVE ACTION-ECP 7791 AUTHORIZED THE USE OF THE BETTER 95-04361 SPECIFICATION SCR (2N693) FOR SWITCH 16 IN BLV -3 PROGRAMMERS. THE SWITCH 16 CIRCUIT IS THE ONLY CIRCUIT SENSITIVE TO THIS FAILURE MODE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	60/AA6083-001-8/FC-CO-01-0013-016 SWITCH	COMPOSITE-FACTORY 2450 640217	YES 60/C NO			
FAILURE MODE-ERRATIC OPERATION. HIGH POWER SWITCH 12, MONITORED ON CHANNEL 16 OF MIDWESTERN RECORDER NO. 2, INDICAT ED BINARY CLOCK PULSES AFTER STAGING PLUS 0.1 SECONDS.						
SYSTEM EFFECT-NONE.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. SYSTEM LEVEL AND COMPOSITE RETESTING REQUIRED. CORRECTIVE ACTION-REPLACED PROGRAMMER.						989033
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4892-P SILICON CONTROL RECTIFIER	PAR 27-41635-8	133D 840131	FACTORY	YES NO		984070
FAILURE MODE-OUT OF SPECIFICATION. TWO HIGH-POWER 2 ASSEMBLIES HAD SWITCH 16 FAIL TO OPERATE PROPERLY. ANALYSIS FOR NO THAT THE SCRS WOULD NOT STAY ON AT LOW HOLDING CURRENT LOADS. BOTH SCRS DID NOT MEET ASTRONAUTICS SPECIFICATION 2 Y-07993.							
CORRECTIVE ACTION-ECF7791 AUTHORIZED THE USE OF THE BETTER 55-04361 SPECIFICATION SCR (5M883) FOR SWITCH 16 IN ALL 3 PROGRAMMERS. THE SWITCH 16 CIRCUIT IS THE ONLY CIRCUIT SENSITIVE TO THIS FAILURE MODE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-4888F SWITCH 16	PAR 27-41001-617	3C 840189	ETR	YES 60/C NO		988443
FAILURE MODE-FAILED DURING OPERATION. SWITCH 16 HAD NO OUTPUT IN THE ARMED OR SAFE POSITION. CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4893-P CIRCUIT BOARD CAPACITOR	PAR 27-41434-803	118P 840123	FACTORY	YES NO		984071
FAILURE MODE-SHORT (ELECT). THE PITCH 1 ASSEMBLY FAILED THE TRANSISTOR SHOOT TEST PER PROCEDURE 27-28423 BOOK 2. ME LD TAPPING OF THE PITCH 1 ASSEMBLY RESULTED IN OUTPUT FLUCTUATION. ANALYSIS ATTRIBUTED THE FAILURE TO A SHORTED CAPA CITOR WHICH WAS POORLY MANUFACTURED. CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-98-04-4881P SWITCH 17	PAR 27-78378-3	283D 840180	WTR	YES NO		988449
FAILURE MODE-ELECTRICAL OPEN. SWITCH 17 HAD INTERMITTENT OUTPUT WITH PROGRAMMER IN THE ARMED POSITION CAUSED BY A D EFFECTIVE SOLDER CONNECTION. CORRECTIVE ACTION-NONE.							

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DIFFICULTIES REVIEW-AUTOPLOIT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4839F CIRCUIT BOARD	FAR 98-41301-881	1950 840120	FACTORY	YES NO	50/A
FAILURE MODE-CONTAMINATION. AUTOPILOT PROGRAMMER FAILED THE SHOCK TEST AND IS ATTRIBUTED TO A CONTAMINATED RECEPTACLE IN THE HARNESS TRAY. IDENTITY OF CONTAMINANT IS NOT KNOWN.						
CORRECTIVE ACTION-IN REPLY TO FAR LV-99-04-3975, 50/A REVISED MS 21.39.2 WHICH SAID-1. DISCONTINUE USE OF STYROFOAM FOR SIX DIFFERENT PART HARNESS TRAYS. 2. WRAP THESE PARTS WITH URETHANE FOAM SHEET OR POLYETHYLENE SHEET AND SECURE SHEET MATERIAL WITH MASKING TAPE. 3. CAUTION-PIN CONTACTS SHALL BE THOROUGHLY DRY AFTER SOLVENT CLEANING PRIOR TO APPLICATION OF THE STYRO FOAM BLOCK ONTO THE PINS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4839F SWITCH 13	FAR 27-72372-3	2850 840117	2-3	YES NO	50/A
FAILURE MODE-FAILED TO OPERATE AT THE PRESCRIBED TIME. SWITCH 13 WAS RECEIVED 16 SECONDS LATE DURING LOOP TEST. THE FAILURE WAS CAUSED BY A DEFECTIVE SCR 2M683. THE SCR WOULD NOT PASS 50/C SPEC 27-07993. TURN ON VOLTAGE TOO LOW.						
CORRECTIVE ACTION-50/C SPEC 27-07993 WAS IMPROVED ON THE 2M683.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SLV-99-04-4591F HARNESS, PITCH TWO ASSEMBLY	FAR 27-41435-801	840103	FACTORY	YES NO	50/A
FAILURE MODE-ERRATIC OPERATION. PITCH VOLTAGE APPEARED INTERMITTENT DURING PRODUCTION VIBRATION OF AN AUTOPILOT PROGRAMMER. THE PITCH TWO ASSEMBLY WAS SUBMITTED FOR FAILURE ANALYSIS AS A CAUTIONARY MEASURE. NO DISCREPANCY WAS FOUND IN THE PITCH TWO ASBY.						
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED						
AUTOPILOT-SQUARE-A/B PROGRAMMER	99A3064 ARM-SAFE SWITCH	UTP-PET 27-02047-1	840102	50/C	YES KINETICS NO	NO 34-1
FAILURE MODE-OUT OF TOLERANCE. DURING PROOF CYCLE C, WITH SWITCH IN SAFE POSITION, AT -30 DEG PLUS 50 DEG F, PLUS 7 DEG F, AND PLUS 160 DEG F SEVERAL VOLTAGE READINGS WERE OUT OF TOLERANCE. USING 3 AMPS OUT-OF-TOLERANCE READINGS WERE FROM 41 TO 112 MILLIVOLTS (SPEC. REQUIREMENT 40 MILLIVOLTS AT 3 AMPS, 200 MILLIVOLTS AT 25 AMPS. FAILURE OCCURRED DURING P.E.T. TEST, REFER TO FAR 107. OTHER FAILURES ON SAME PART ON 840103 AND 840120.						
CORRECTIVE ACTION-ECF 7890 (TO CHANGE MAXIMUM ALLOWABLE VOLTAGE DROP TO 500 MILLIVOLTS) WAS DISAPPROVED BY THE CUSTOMER. CIC 88087 WILL BE RESUBMITTED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PHI OTM	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4878-C CIRCUIT BOARD	FAR 27-41439-3	631216	FACTORY	YES NO		892836
FAILURE MODE-FAILED DURING OPERATION. THE PITCH 2 ASSEMBLY FAILED DURING VIBRATION TEST. SUBSEQUENT RETEST OF THIS ASSEMBLY DID NOT VERIFY THIS REPORTED FAILURE.							
CORRECTIVE ACTION-NONE. NO FAILURE ANALYSIS WAS PERFORMED BECAUSE THERE WAS NO CONTRACTURAL COVERAGE FOR E SERIES U PLATING.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-48977 CIRCUIT, BINARY ASSEMBLY	FAR 27-41499-1	631214	FACTORY	YES NO		893126
FAILURE MODE-SHORT, ELECTRICAL. THE MODULE WAS REJECTED FOR AN INTERNAL SHORT CIRCUIT. THE SHORT WAS DUE TO EXCESS BOLDER ON THE PRINTED CIRCUIT BOARD.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4848F BINARY CLOCK TRANSISTOR	FAR 27-41443	631213	FACTORY	YES NO		891636
FAILURE MODE-SHORT (ELECTRICAL). COUNTER ASSEMBLY FOUND TO BE VIBRATION SENSITIVE DURING PRODUCTION VIBRATION TESTS. OPERATION WAS INTERMITTENT WHEN SHAKEN BY HAND. FAILURE IS ATTRIBUTED TO LOOSE GOLD FLAKES SHORT-CIRCUITING THE TRANSISTOR INTERNAL ELEMENTS. EXACT CAUSE OF THE ANTIMONY-GOLD FLAKING OFF THE TRANSISTOR HEADER IS NOT KNOWN. CURING PROCESS MAY BE INADEQUATE.							
CORRECTIVE ACTION--PER FAR A-99-04-3866 GO/A PURGED STOCK OF ALL TYPE 2M497 AND 2M498 RHEEN TRANSISTORS MANUFACTURED IN OR PRIOR TO 1961. PER FAR A-99-04-3867, EFFECTIVE JANUARY 8 1964, VENDOR INITIATED A SPECIFICATION FOR 100 PERCENT 20X MAGNIFICATION VISUAL INSPECTION OF SILICON TRANSISTORS IMMEDIATELY BEFORE FINAL SEALING. ON MARCH 31, 1964 GO/A CONDUCTED A RANDOM SAMPLING OF 3600 RHEEN TRANSISTORS TYPES 2M497 AND 2M498 IN STOCK. NONE WERE FOUND MANUFACTURED IN 1961 OR EARLIER.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-98-04-4878-F TRANSISTOR	FAR 27-41001-831	1960 631208	ETR	YES NO		
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE PROGRAMMER WAS REJECTED WHEN, DURING SYSTEM TESTS, THE ZERO-TIME LIGHT IN THE BLOCKHOUSE FAILED TO ILLUMINATE. THE FAILURE WAS REPEATED ON THE BASE GYROSCOPE LABORATORY TEST SET. ANALYSIS CONFIRMED THE FAILURE. HOWEVER, THE PROGRAMMER CORRECTED ITSELF ABOUT FIVE MINUTES AFTER BEING STARTED AND DID NOT REPEAT THE FAILURE. DETAIL ANALYSIS COULD FIND NO DISCREPANCY OTHER THAN A TRANSISTOR (2M497) WHOSE IC80, A 7 A 80 VOLT COLLECTOR-TO-BASE, WAS OUT OF SPEC.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SIZE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE.							094470
AUTOPILOT-SQUARE-A/B PROGRAMMER	99A897 ACCELEROMETER	UTP-PRT 27-04099-801	431129	60/C	YES	ED CLIFF NO 106892-1	093873
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING PRT 2 AXIS HIGH TEMP-VIBRATION TEST THE SPECIMEN WOULD NOT ACTUATE AT 1000 CPS. ALSO AT ROOM AMBIENT CONDITIONS THE SELF CHECK OPERATED INTERMITTENTLY DUE TO SELF HEATING OF THE SELF-CHECK COIL. REFER TO PRR 074.							
CORRECTIVE ACTION-ECP 7857 TO MODIFY SELF-TEST CIRCUIT.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-90-04-4574-F CONNECTOR US-J3	FAR 81-55900-718	831126	NTR	YES	NO	092530
FAILURE MODE-LEAK, EXTERNAL. THE AUTOPILOT PROGRAMMER FAILED WHEN IT LEAKED GASEOUS NITROGEN THROUGH THE US-J3 CONNECTOR. TESTS CONFIRMED THE LEAKAGE EXCEEDED THE ALLOWABLE 1 CUBIC INCH PER HOUR AT 30 PSIG.							
CORRECTIVE ACTION-ILLUMINO (RUBBER CEMENT) WAS APPLIED TO THE LEAKING CONNECTOR. SINCE PLIOTOND APPLIED PER NS 82-1 6.10 IS STANDARD PROCEDURE FOR REPAIRING CONNECTOR FOUND LEAKING, AND THIS METHOD IS FELT TO BE ADEQUATE, THERE WAS NO ADDITIONAL CORRECTIVE ACTION.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4561-F RECTIFIER	FAR 87-93900-060	831118	FACTORY	YES	GENERAL ELECTRIC NO IC 2N683	092534
FAILURE MODE-OUT OF SPECIFICATION. THE SILICON-CONTROLLED RECTIFIER (SCR) WAS REJECTED WHEN IT WOULD NOT FIRE INTO A 80 MILLIAMPERE CATHODE LOAD. IT WAS DETERMINED THAT THIS SCR WOULD NOT OPERATE IN ACCORDANCE WITH GDC SPECIFICATION NO ALTHOUGH NO DISCREPANCIES WERE OBSERVED WHEN IT WAS TESTED IN ACCORDANCE WITH THE MANUFACTURED SPECIFICATION.							
CORRECTIVE ACTION-GDC SPECIFICATION 27-07993 WAS INCORPORATED IN SLV-3 (69-1650), LVSC (89-0502), AND LVSA (27-0020 ONLY). THERE DID NOT APPEAR TO BE SUFFICIENT JUSTIFICATION FOR WEAPON SYSTEM APPLICATION.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-89-04-4583-F ACCELEROMETER	FAR 27-04099-803	831118	FACTORY	YES	ED CLIFF NO 106892-1	
FAILURE MODE-SHORT (ELECTRICAL). THE ACCELEROMETER SWITCH FAILED WHEN THE INSULATION RESISTANCE WAS REPORTED AS BEING LESS THAN THE REQUIRED 10 MEGOHMS. EXCESSIVE SOLDER AND INADEQUATE INSULATION RESULTED IN A SHORT BETWEEN THE RESISTOR TERMINAL AND THE ACCELEROMETER COVER. THIS FOLLOWED REMOVAL OF THE UNIT BY THE STANDARDS LAB TO RESET THE OPERATING POINT.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME C/P	SITE	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-STANDARDS LAB PERSONNEL WERE INSTRUCTED TO DISCONTINUE REWORKING THESE UNITS. A SURVEY WAS MADE OF CURRENT INVENTORY. ALL UNITS FOUND IN A CONDITION SIMILAR TO THE FAILED UNIT OR OTHERWISE REQUIRING MODIFICATION WERE RETURNED TO THE VENDOR.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4580-F CIRCUIT BOARD-TRANSISTOR	FAR 27-41998-3	631115	FACTORY	YES NO	
FAILURE MODE-FAIL DURING OPERATION. THE LOW POWER 1 ASSEMBLY FAILED DURING PRODUCTION VIBRATION TESTING. THE FAILURE WAS DUE TO IMPROPER OPERATION OF EITHER TRANSISTORS Q-20 OR Q-22. BOTH TRANSISTORS WERE DAMAGED DURING ANALYSIS AND THE EXACT CAUSE OF THE TRANSISTOR MALFUNCTION COULD NOT BE DETERMINED.						
CORRECTIVE ACTION-NONE. THE EXACT CAUSE OF THE FAILURE WAS NOT FOUND.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4585-F ACCELEROMETER SWITCH/TRANSISTOR	FAR 27-04099-3	631115	FACTORY	YES NO	EDCLIFF NO 108892 MODEL 7 -56A
FAILURE MODE-OPEN (ELECTRICAL). THE ACCELEROMETER SWITCH REPORTEDLY FAILED DURING STANDARD LABORATORY CALIBRATION WHEN THE SWITCH WOULD NOT ACTUATE DURING A SELF-TEST RUN. FAILURE WAS CAUSED BY THE EMITTER LEAD OF TRANSISTOR Q-1 NO 1 BEING SOLDERED TO THE TERMINAL.						
CORRECTIVE ACTION-THE VENDOR INSTRUCTED HIS INSPECTORS TO PLACE STAMP MARKS DIRECTLY ON POTTING TO INDICATE ALL WORK WAS CHECKED AND THE POTTING OPERATION WAS WITNESSED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4498-C LOGIC & ASSEMBLY-CIRCUIT BOARD	FAR 27-72720-1	631115	FACTORY	YES NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. LOGIC & ASSEMBLY IN AUTOPILOT PROGRAMMER P/N 27-45901-801 (B/M 309-0171) FAILED DURING TEST. SWITCH 26 DID NOT FUNCTION AT PRESCRIBED TIME.						
CORRECTIVE ACTION-NO ACTION TAKEN. THIS LOGIC & ASSEMBLY WAS PART OF F OPERATIONAL UP-DATE PROGRAM. THERE WAS NO FAILURE ANALYSIS CONTRACTURAL COVERAGE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4589-F RECTIFIER	FAR 27-72572-N	2980 631115	FACTORY	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. THE AUTOPILOT PROGRAMMER FAILED DURING SYSTEM TESTS WHEN THE OUTPUT OF SWITCH 17 VAIRED AFTER IT HAD TURNED ON. IT WAS DETERMINED THAT SWITCH 17, A SILICON-CONTROLLED RECTIFIER (SCR) FAILED TO MEET						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SIZE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
Y GDC SPECIFICATIONS ALTHOUGH IT PASSED TESTS ACCORDING TO THE MANUFACTURERS SPECIFICATIONS.						
CORRECTIVE ACTION-APPROPRIATE DESIGN GROUPS WERE REQUESTED TO INCORPORATE THE GDC SPECIFICATION INTO ALL PROGRAMS. FURTHER ACTION WAS SUSPENDED BECAUSE OF CONTRACT TERMINATION.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-99-04-4598-C CIRCUIT BOARD	FAR 27-72720-1	031113	FACTORY	YES NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. LOGIC 8 ASSEMBLY IN AUTOPLOT PROGRAMMER P/N 27-43901-001 (B/M 111 -0082) FAILED DURING TEST. SWITCH 27 DID NOT FUNCTION AT PRESCRIBED TIME.						
CORRECTIVE ACTION-NO ACTION TAKEN. THIS LOGIC 8 ASSEMBLY WAS PART OF F-OPERATIONAL UP-DATE PROGRAM. THERE WAS NO FAILURE ANALYSIS CONTRACTUAL COVERAGE.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	LV-99-04-4531-F MULTIVIBRATOR/BINARY ASSEMBLY DICO 27-41498-1 E CR-2	FAR	031112	FACTORY	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. THE BINARY ASSEMBLY WAS REJECTED WHEN IT FAILED EOP324.45, STEPS 13, 14, 15, AND 16 DURING 3-0ASSEMBLY TESTING. THE PROCEDURE CALLS OUT 0.00 TO 0.14 KILOHMS. THE ACTUAL READING WAS 10 KILOHMS. ANALYSIS REVEALED DIODE CR-2 HAD BEEN INSTALLED BACKWARDS.						
CORRECTIVE ACTION-A REVIEW WAS MADE OF BINARY ASSEMBLY TEST PROCEDURES AND EQUIPMENT, EACH OF WHICH WAS FOUND ADEQUATE. PERSONNEL CONCERNED WERE CAUTIONED TO EXERCISE GREATER CARE IN ACCOMPLISHING THEIR ASSIGNED TASKS. IN ORDER TO OBTAIN BETTER CONTROL OVER THE PROCEDURAL ROUTING OF BINARY ASSEMBLIES, EACH ASSEMBLY IS ACCOMPANIED BY ITS OWN PLANING PAPER, EFFECTIVE 10 JAN 1964.						
AUTOPLOT-SQUARE-A/E PROGRAMMER	LV-99-04-4518-F CIRCUIT BOARD-DIODE	FAR 27-41498-1	031111	FACTORY	YES NO	
FAILURE MODE-OPEN ELECTRICAL. THE BINARY ASSEMBLY REPORTEDLY FAILED DURING MANUFACTURING TESTING WHEN IT INDICATED AN OPEN CIRCUIT. SUBSEQUENT TESTING REVEALED THAT THE RESET DIODE, CR-3 (1M37), WAS OPEN. STRESS ON DIODE LEAD WIRE CAUSED THE OPEN. THE DIODE FAILED EITHER DURING MANUFACTURING ASSEMBLY OR POTTING, DUE TO INSUFFICIENT STRESS RELIEF OF THE DIODE LEADS.						
CORRECTIVE ACTION-ASSEMBLY AND INSPECTION PERSONNEL WERE INSTRUCTED TO BE CAREFUL TO RE-EXAMINE ALL PARTS BEFORE POTTING. POTTING PERSONNEL WERE REMINDED OF THE HANDLING CARE NECESSARY TO MAINTAIN A DAMAGE-FREE BINARY ASSEMBLY.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-98-04-113F DIODE	FAR 95-41001-833	128D 931104	ETR	NO NO		892714
FAILURE MODE-ELECTRICAL OPEN. SWITCH 15 FAILED DURING CHECKOUT OF VEHICLE 128D-THE FAILURE WAS DUE TO AN OPEN DIODE CR-12 IN THE REMOTE SET P/N 27-41398-819. THE DIODE HAD BEEN BURNED BY EXCESSIVE CURRENT FLOW. THE FAILURE WAS CAUSED BY A GROUNDED WIRE SPLICE IN THE MISSILE HARNESS.							
CORRECTIVE ACTION-NONE-IT WAS RECOMMENDED THE WIRING HARNESS BE REMOVED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4493-C HIGH-POWER 2 ASSEMBLY	FAR 27-41633-3	931104	FACTORY	YES NO		890876
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. HIGH-POWER 2 ASSEMBLY FAILED. SWITCH 15 FAILED TO FIRE, AND SWITCH ES 16 AND 17 FAILED TO RESET AT PRESCRIBED TIMES.							
CORRECTIVE ACTION-NO ACTION TAKEN. THIS HIGH-POWER 2 ASSEMBLY WAS PART OF F-OPERATIONAL UP-DATE PROGRAM. THERE WAS NO FAILURE ANALYSIS CONTRACTUAL COVERAGE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4555-F TRANSFORMER	FAR 27-04174-3	931102	FACTORY	YES NO	CALIFORNIA HAS METRIC CONTROLS 8C70713	890870
FAILURE MODE-OPEN (ELECTRICAL). THE TRANSFORMER WINDINGS BETWEEN TERMINALS 4 AND 5 INDICATED OPEN DURING MANUFACTURING TESTING IN THE FACTORY. FAILURE WAS CAUSED BECAUSE THE WIRE FOR TERMINAL 5 WAS CONNECTED TO A SOLDER BALL MAKING TOUCH CONTACT WITH THE TERMINAL LUG RATHER THAN BEING CONNECTED TO THE LUG ITSELF. THE TOUCH CONTACT BROKE DURING NORMAL TESTING.							
CORRECTIVE ACTION-THE VENDOR REPORTED THAT ITS QUALITY CONTROL UNCOVERED SLOPPY REMORKING DURING THE MOLDING OPERATION ABOUT ONE YEAR BEFORE THIS FAILURE. THIS WAS CORRECTED AND NO REMORK DURING OR AFTER MOLDING HAS SINCE BEEN ALLOWED. THIS TRANSFORMER APPARENTLY WAS MADE BEFORE THIS ACTION WAS TAKEN. SINCE THIS IS THE ONLY KNOWN FAILURE OF THIS UNIT, NO ADDITIONAL ACTION WAS REQUIRED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-98-04-118-P SWITCH 27	FAR 95-41001-833	931023	36A	NO NO		
FAILURE MODE-FAIL DURING OPERATION. S/N 204-008 PROGRAMMER FAILED WHEN SWITCH 27 WAS OBSERVED TO BE ON WHEN THE PROGRAMMER WAS AT ZERO TIME. APPLICATION OF A RESET COMMAND TURNED SWITCH 27 OFF. PROGRAMMER S/N 301-0008 WAS REJECTED WHEN SWITCH 15 WAS OBSERVED TO HAVE NO OUTPUT. FAILURE CONFIRMED IN BOTH UNITS THE CAUSE IS ATTRIBUTED TO EXTERNAL A MOST CIRCUITING.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE.							992941
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-99-04-107-F 60/C	FAR 55-41001-855	631025	FACTORY	NO	NO	992939
FAILURE MODE-FAILED DURING OPERATION. THE PROGRAMMER STOPPED AT 100.181 SECONDS AND THE PITCH LEVEL INDICATOR LIGHT CAME ON. THERE WAS NO FAILURE IN PROGRAMMER. FAILURE INDICATION RESULTED FROM POSSIBLE POOR SOLDER CONNECTION IN E11 WER THE A-22 OR A-23 CHASSIS IN THE TEST SET.							
CORRECTIVE ACTION-NONE.							991397
AUTOPILOT-SQUARE-A/B PROGRAMMER	NZ-AD-04-4507-F CIRCUIT BOARD CAPACITOR	FAR 27-44338-3	2470	FACTORY	YES	NO	
FAILURE MODE-SHORT (ELECTRICAL). THE AUTOPILOT PROGRAMMER REPORTEDLY FAILED ON VEHICLE 2470 WHILE UNDER TEST AT DOC R 13 FACTORY CHECKOUT AREA. NO OUTPUT SIGNALS WERE RECEIVED FROM THE VERNIER ENGINE CUTOFF AND THE ZERO-TIME INDICATOR. CAPACITOR C-11 (MANUFACTURED BY ITT P/N PA4088) WAS FOUND TO BE BURIED AND SHORT CIRCUITED. THE CAPACITOR FAILURE WAS PROBABLY CAUSED BY A SLIGHT MISALIGNMENT OF THE INSULATING GASKET DURING MANUFACTURING.							
CORRECTIVE ACTION-THE VENDOR REDUCED THE DIAMETER CAPACITOR TANTALUM DISK FROM 0.307 INCH TO 0.498 INCH, TO REDUCE THE POSSIBILITY OF SHORT CIRCUITING THE TANTALUM DISC TO THE CASE DUE TO SLIGHT MISALIGNMENT OF THE INSULATING GASKET. ALSO, BETWEEN THE TANTALUM DISC AND THE ANODE THE DIAMETERS MUST BE TRUE AND CONCENTRIC WITH EACH OTHER TO WITHIN 0.003 INCH TOTAL READING.							990996
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-99-04-103-P	FAR 55-41001-855	1260	FACTORY	YES	60/C	
FAILURE MODE-OUT OF TOLERANCE. PROGRAMMER REPORTEDLY FAILED IN CHECKOUT AREA AFTER MODIFICATION FROM A DASH 649 TO DASH 655. RESISTANCE MEASUREMENT FROM PIN J3-D TO J1-F WAS 7.6 KILOHMS. PROCEDURE 27-28424, BOOK 2, PARAGRAPH 3.6.9, TABLE IV, SPECIFIES 6 TO 12 KILOHMS. REPORTED FAILURE WAS CONFIRMED, AND WAS ATTRIBUTED TO A TOLERANCE ERROR INTEREST PROCEDURE.							
CORRECTIVE ACTION-ENGINEERING CHANGE NOTICE 311930, CHANGE D, DATED OCTOBER 11, 1963, WAS ISSUED TO CORRECT RESISTIVE TOLERANCE FROM 6-12 KILOHMS TO 7-12 KILOHMS IN PROCEDURE 27-28424, BOOK 2, PARAGRAPH 3.6.9, TABLE 4.							

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AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-4480-F CIRCUIT BOARD-DIODE	FAR 87-41001-817	138F 831007	ETR 504	YES NO	
<p>FAILURE MODE-OUT OF SPECIFICATION. IMPROPER OPERATION OF PROGRAMMER SWITCH 22 AT 504 SECONDS. THIS SHOULD NOT HAVE OCCURRED AS SWITCH 22 IS NOT USED IN THIS PROGRAM. AN INCORRECT DIODE MATRIX INSTALLATION WAS THE CAUSE. SINCE THERE IS NO PROCEDURE CALLOUT FOR A COMPLETE CHECK OF EVERY SWITCH FUNCTION, THIS PROBLEM WAS NOT OBSERVED IN PRIOR TESTS. INCORRECT INSTALLATION COULD NOT BE EXPLAINED.</p>						
<p>CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN. EXISTING PROCEDURES AND/OR TEST EQUIPMENT NOT NOTIFIED TO INCLUDE COMPLETE SWITCH CHECKOUT DUE TO MINOR NATURE OF PROBLEM AND LACK OF BUDGET.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-99-04-103-F SWITCH	FAR 59-41001-855	831008	FACTORY 225	YES NO	
<p>FAILURE MODE-FAIL DURING OPERATION. AUTOPILOT PROGRAMMER REPORTEDLY FAILED WHEN THE AUTOMATIC TEST SET STOPPED INITIALLY AT 225 SECONDS WITH SEVERAL PROGRAMMER SWITCH TIMING FAILURES INDICATED. FAILURE WAS CAUSED BY A STICKING CONTACT ON THE SWITCH 22 RELAY. THE RELAY CONTACTS WERE MOST PROBABLY DAMAGED BY AN EXCESSIVE LOAD OR SHORT CIRCUIT ON THE OUTPUT AT SOME TIME DURING THE RELAYS LIFE.</p>						
<p>CORRECTIVE ACTION-NONE.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4492-F CIRCUIT BOARD-WIRING	FAR 87-41498-1	831005	FACTORY	YES NO	
<p>FAILURE MODE-OUT OF SPECIFICATION. BINARY ASSEMBLY (B/N 9279) FAILED STANDARD MANUFACTURING POST-ENCAPSULATION TEST. UNIT WAS DEPOTTED AND IT WAS OBSERVED THAT LEAD WIRES 3 AND 7 WERE CROSSED OVER INSIDE THE POTTED CASE, RESULTING IN AN EXTERNAL REVERSED POSITION OF THE TWO WIRES. CROSS-OVER MOST LIKELY OCCURRED WHEN BINARY ASSEMBLY WAS PLACED INTO POTTING MOLD.</p>						
<p>CORRECTIVE ACTION-DIODE ASSEMBLY WAS MADE PRIOR TO CHANGE TO SHORTER LEAD WIRES. THEREFORE, CROSS-OVER OF LEADS DURING POTTING NOW ELIMINATED.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4492-F CIRCUIT BOARD-WIRING	FAR 87-41498-1	831005	FACTORY	YES NO	
<p>FAILURE MODE-ELECTRICAL SHORT. BINARY ASSEMBLY (B/N 9405) FAILED STANDARD MANUFACTURING POST-ENCAPSULATION TEST. UNIT WAS DEPOTTED AND AN INTERNAL SHORT BETWEEN LEAD WIRE 8 AND THE CATHODE LEAD OF DIODE CR-1 WAS DISCOVERED. THE FAILURE WAS DUE TO WIRING DISCREPANCY INSIDE THE POTTED CASE. SHORT MOST LIKELY OCCURRED WHEN BINARY ASSEMBLY WAS PLACED INTO POTTING MOLD.</p>						

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	CORRECTIVE ACTION-DIODE ASSEMBLY WAS MADE PRIOR TO CHANGE TO SHORTER LEAD WIRES. THEREFORE, SHORTING OF LEADS DURING POURING PROCESS NOW ELIMINATED.					
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-48-04-4543-F CIRCUIT BOARD/LOGIC 1 AND 2 NETWORK 27-41422-801 R	FAR	931003	FACTORY	YES NO	
FAILURE MODE-ERRATIC OPERATION. THE LOGIC 1 AND 2 NETWORK FAILED DURING PRODUCTION VIBRATION OF THE AUTOPILOT PROGRAMMER CAUSING THE PROGRAMMER TO JUMP 60 MILLISECONDS AHEAD OF THE TIME STANDARD. THIS REPORTED FAILURE WAS NOT VERIFIED. IT IS PROBABLE INCORRECT TEST PRACTICES WERE PERFORMED ON THE TEST SET RESULTING IN A FAILURE INDICATION OF THE LOGIC NETWORK.						
CORRECTIVE ACTION-NONE. THERE WAS NO DETECTABLE FAILURE IN THE LOGIC NETWORK.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4544-F CIRCUIT BOARD-DIODE	FAR 27-41422-807	1970	FACTORY	YES NO	
FAILURE MODE-STRUCTURAL. SWITCH 28 OF THE LOGIC 6 ASSEMBLY IN THE AUTOPILOT PROGRAMMER ACTIVATED AFTER 20 SECONDS OF AUTOMATIC TESTING INSTEAD OF 201.1 SECONDS. THE FAILURE WAS ATTRIBUTED TO A CRACKED DIODE IN THE SWITCH 28 OUTPUT. THE BREAKAGE WAS DUE TO EXCESSIVE CONFORMAL COATING AROUND THE BODY OF THE DIODE.						
CORRECTIVE ACTION-1.MPS 25.45 WAS AMENDED TO REQUIRE MINIMUM CONFORMAL COATING BE APPLIED TO AREAS WHERE COMPONENTS WERE REPLACED, TO ELIMINATE EXCESSIVE COATING.2. TOOLS WERE MADE TO CHECK MOUNTING HOLE ALIGNMENT OF CIRCUIT BOARDS AND MODULE FRAMES AND TO ELIMINATE VARIANCE OF THE HOLE PATTERN. 3.MPS 18.09 WAS ISSUED CONCERNING THE PROPERTIES AND QUALITY OF THE EPOXY CONFORMAL COATING.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-99-04-4520P CIRCUIT BOARD TRANSISTOR	FAR 27-40984-803	2050	FACTORY	YES NO	
FAILURE MODE-FAILED DURING OPERATION. DURING MANUFACTURING TESTING OF THE AUTOPILOT PROGRAMMER, THE LOWER ASSEMBLY FAILED TO MANUALLY RESET TO ZERO TIME. THE REPORTED FAILURE WAS CONFIRMED AND IS ATTRIBUTED TO TWO DEFECTIVE TRANSISTORS Q-4 IN THE T-3 AND THE T-4 BINARY CIRCUITS (BOTH GREEN 2M497). THE EXACT CAUSE OF THE TRANSISTOR FAILURES IS UNKNOWN.						
CORRECTIVE ACTION-NONE.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PHI OTM	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4431-F DIODE	FAR 27-72572-3	2850 930925	FACTORY	YES	60/C NO	892723
FAILURE MODE-PREMIATURE OPERATION. PROGRAMMER REPORTEDLY SWITCHED FROM 1.8 TO 2.0 VOLTS AT 15 SECONDS AFTER PROGRAMMER START. THIS SHOULD OCCUR AT PLUS 30.0 SECONDS. THE REPORTED FAILURE COULD NOT BE VERIFIED AFTER REPEATED TESTING. THE FAILURE MODE COULD BE DUPLICATED BY MOMENTARILY SHORTING CR-6 IN THE SWITCH FLIP-FLOP CIRCUITRY. DIODE CR-6 WAS EXAMINED MICROSCOPICLY BUT DID NOT REVEAL ANY DISCREPANCY							
CORRECTIVE ACTION-NO CORRECTIVE ACTION CAN BE TAKEN AS THE EXACT CAUSE OF FAILURE INDICATION IS NOT KNOWN.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	702-6NO-04-45 SWITCH	COMPOSITE-PRD/DPL 45P 930924	45P 930924	6	YES NO		894939
FAILURE MODE-FAIL DURING OPERATION. VERNIER BIASED TO 90 DEGREES AT (SIMULATED) IGNITION PLUS 241 SECONDS. CAUSED BY A FAILED SWITCH 4 IN THE A/P PROGRAMMER.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS PRESENTED TO THE VERNIER WALLING COMPARTOR WHICH ARE SCANNING FOR A HALL AT THIS TIME.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-PROGRAMMER REPLACED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-30-04-4427-F SWITCH	FAR 27-43901-801	45P 930924	WTR	YES	60/C NO	892722
FAILURE MODE-OUT OF TOLERANCE. PROGRAMMER IN/D WHEN VERNIER ENGINES WERE FOUND BIASED OUT TO 90 DEGREES AT ZERO TIM E. NO DISCREPANCY WAS FOUND BY FAILURE ANALYSIS. THE REPORTED FAILURE MAY HAVE BEEN CAUSED BY A SMALL TRANSIENT, CAU SING SW,4 TO TURN OVER. SOURCE OF THIS TRANSIENT COULD NOT BE FOUND.							
CORRECTIVE ACTION-NO ACTION TAKEN AS FAILURE COULD NOT BE CONFIRMED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-99-04-4436-F	FAR 27-41499-1	930921	FACTORY	YES	60/C NO	
FAILURE MODE- FAIL DURING OPERATION. IT WAS REPORTED THAT THE BINARY ASSEMBLY WAS SHORTED OUT DURING VIBRATION. THE BINARY ASSEMBLY WAS REMOVED FROM ITS NEXT ASSEMBLY AND FAILURE ANALYZED. NO FAILURE COULD BE FOUND. IT IS POSSIBLE REMOVAL OF THIS ASSEMBLY FROM ITS NEXT ASSEMBLY ALSO REMOVED THE FAILURE SAMPLE.							
CORRECTIVE ACTION-IT WAS REQUESTED FACTORY SHIP THE WHOLE DISCREPANT UNIT FOR FAILURE ANALYSIS RATHER THAN ONLY THE							

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SUSPECT SUBASSEMBLY COMPONENT, THIS WILL PREVENT INDISCRIMINATE LOSS OF FAILURE SAMPLES.							898727
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4440-F HI-POWER SWITCH-RELAY	FAR 68-73807-87	630820	FACTORY	YES UNION SW. AND NO SIG.		898731
FAILURE MODE-FAIL TO OPERATE. THE RELAY USED ON THE HIGH PWR ASSEMBLY REPORTEDLY STUCK AND FAILED TO OPERATE. THE REPORTED FAILURE WAS NOT CONFIRMED. HOWEVER UNUSED TERMINALS 15, 16, AND 17 WERE SHORTED TOGETHER DUE TO AN INTERNAL SHORT TERMINAL 17. THE BENT TERMINAL 17 WAS MOST LIKELY CAUSED BY DROPPING RELAY WHEN IT WAS REMOVED FROM ITS TEST ASSEMBLY CIRCUIT BOARD. ALSO REF. FAR A-99-04-4439-F FOR SIMILAR FAILURES.							
CORRECTIVE ACTION-NONE. FAILURE COULD NOT BE CONFIRMED.							898132
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-49-04-4409-F	FAR 27-43901-801	58-F 630919	WTR	YES 60/C NO		
FAILURE MODE-OUT OF TOLERANCE. PROGRAMMER WAS IR/D FOR LOW NO GO ON MAPCHE CARD 424. CARD 424 MEASURES PROGRAMMER FUNCTIONS JUST BEFORE THE ROLL GUIDANCE ENABLE FUNCTION OCCURS. (MEASURES THAT ROLL GUIDANCE ENABLE DOES NOT OCCUR PREMATURELY.) FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-FAILURE COULD NOT BE CONFIRMED. NO CORRECTIVE ACTION TAKEN.							898143
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-49-04-4418-F SWITCH-SCR	FAR 27-43901-801	110F 630919	FACTORY	NO NO		
FAILURE MODE-SHORT-ELECTRICAL. PROGRAMMER WAS IR/D WHEN NO OUTPUT FROM SW. 18 WAS OBSERVED. TESTS SHOWED THAT THE CURRENT LIMITER IN SW. 18 WAS BURNED OPEN. THIS WAS CAUSED BY A SHORT IN A TEST CABLE CONNECTING TEST ACCESSORY 3068 TO THE MISSILE HARNESS. SHORT WAS CAUSED BY AN INCORRECT ASSEMBLY OF CONNECTOR 92-30039-303.							
CORRECTIVE ACTION-ALL TEST HARNESSES USING THE 92-30039-303 CONNECTOR WERE INSPECTED AND FOUND TO BE ASSEMBLED CORRECTLY.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A493-0037/PE-4CO-01-283	COMPOSITE-B FACT	283D 630919	ETR	NO NO		
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UNBILICAL PWR WAS NOT MANUALLY EJECTED UNTIL PLUS 9.8 SECONDS. AS A RESULT, THE ROLL PROGRAM WAS STARTED AT 9.8 SECONDS.							
SYSTEM EFFECT-OPERATION STARTS TOO LATE.							
VEHICLE EFFECT-NONE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	AAGS-0037/P2-4CO-01-883	COMPOSITE-B FACT	283D 630916	ETR	YES NO	
FAILURE MODE-FAIL DURING OPERATION. THE AUTOPILOT FAILED TO ISSUE THE VELOCITY PACKAGE SEPARATION BACK UP SIGNAL.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.						
VEHICLE EFFECT-COMMAND NOT RECEIVED.						
CORRECTIVE ACTION-PROGRAMMER REPLACED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-93-04-4540-F SWITCH Z2	FAR 27-41001-621	283D 630913	ETR	NO NO	
FAILURE MODE-SHORT ELECTRICAL. DURING PROGRAMMER TROUBLE SHOOTING A CURRENT LIMITER WAS BURNED OPEN WHEN THE OUTPUT OF SWITCH Z2, THE SEPARATION SEQUENCE BACKUP FUNCTION, WAS INADVERTENTLY SHORTED TO GROUND. THIS MADE SWITCH Z2 INOPERATIVE.						
CORRECTIVE ACTION-ETR PERSONNEL WERE CAUTIONED TO USE EXTREME CARE WHEN TROUBLESHOOTING SHOOTING AUTOPILOT PROGRAMMER WHILE POWER IS ON.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	LV-93-04-4540-F SWITCH-ARM/SAFE	FAR 27-41001-621	283D 630913	ETR	YES NO	
FAILURE MODE-FAILED DURING OPERATION. THE SAFELIGHT EXTINGUISHED FOR NO APPARENT REASON DURING A GUIDANCE COMMAND TEST. THIS INDICATED A POSSIBLE PROBLEM WITH THE ARM-SAFE SWITCH. THIS FAILURE COULD NOT BE REPEATED OR CONFIRMED AND MAY HAVE BEEN DUE TO A LOOSE TEST SET CONNECTION OR TO A LOOSE LIGHT BULB.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4432-F M1-POWER SWITCH-RELAY	FAR 84-73900-067	630913	FACTORY	YES UNION 3M AND 3 NO 16.	
FAILURE MODE-FAIL TO OPERATE. THREE RELAYS REPORTEDLY FAILED WHILE INSTALLED IN THEIR NEXT ASSEMBLIES. NEXT ASSEMBLY SENT FOR ANALYSIS RATHER THAN THE INDIVIDUAL RELAYS.						

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CORRECTIVE ACTION-FAILURE COULD NOT BE CONFIRMED. NO FURTHER CORRECTIVE ACTION TAKEN.							892730
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-48-04-4407-F POWER SUPPLY CAPACITOR	FAR 27-43901	113F 630912	FACTORY	YES NO		893134
FAILURE MODE-OUT OF TOLERANCE. PROGRAMMER IN/O FOR RUNNING AT THREE NORMAL SPEED WITH MISSILE PAR. THE OPERATION WAS NORMAL USING GROUND PAR. FAILURE ANALYSIS REVEALED A FAULTY CAPACITOR C-8 IN THE ATAL PLUS 40 VDC POWER SUPPLY. THE MISSILE INVERTER WAVE SHAPE RIPPLED COMBINED WITH NO FILTERING OF THE PLUS 40 VDC RESULTED IN A RIPPLE VOLTAGE OF SUFFICIENT MAGNITUDE TO TRIP THE BINARIES IN THE CLOCK PULSE GENERATOR. THIS CONDITION RESULTED IN DOUBLE FREQUENCY PULSES OUT OF THE CLOCK.							
CORRECTIVE ACTION-60/C MODIFIED PAR. SUPPLY TEST SET (EID 27-3804) TO INCREASE MEASUREMENT ACCURACIES OF VOLTAGE AND RIPPLE.							892546
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-49-04-4379-F CIRCUIT BOARD	FAR 27-43901-801	109F 630912	FACTORY	YES NO		
FAILURE MODE-OPEN (ELECT). DURING SYSTEM CHECKOUT SWITCH 18 HAD NO OUTPUT AT TIME TO FIRE RETROCKETS. FAILURE WAS CONFIRMED DUE TO OPEN CURRENT LIMITER ON HIGH POWER 2 BOARD 27-41835-5. FAILURE CAUSED BY EXCESSIVE CURRENT FLOW UNDER PROBABLE INADVERTENT GROUNDING OF SWITCH 18 OUTPUT.							
CORRECTIVE ACTION-60/C CHECKED MISSILE AND FACTORY TEST EQUIPMENT WIRING FOR SHORT CIRCUITS THAT COULD HAVE CAUSED EXCESSIVE CURRENT TO FLOW THROUGH THE CURRENT LIMITER. NO SHORT CIRCUITS WERE FOUND.							891198
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-4506-F	FAR 27-41001-817	136F 630908	ETR	YES NO		
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE AUTOPILOT PROGRAMMER WAS REJECTED AT ETR DURING TESTING IN THE GYRO LABORATORY WHEN NO ZERO TIME INDICATION WAS OBSERVED. THE REPORTED FAILURE WAS NOT CONFIRMED AFTER EXTENSIVE TESTING. THE TEST EQUIPMENT SUCCESSFULLY TESTED SUBSEQUENT PROGRAMMERS; THEREFORE, IT IS HIGHLY UNLIKELY THAT THE FAILURE WAS DUE TO A TEST EQUIPMENT MALFUNCTION.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A483-0003-109F/FC-CO-01-0012-181	COMPOSITE-FACTORY	109F 630931		NO NO		
FAILURE MODE-FAIL DURING OPERATION. CHANNEL NO. 1 OF MIDWEST NO. 2 MONITORING PROGRAMMER START INDICATED AN EXTRANEOUS DEFLECTION AT APPROXIMATELY 88 SECONDS DUE TO FAULTY TEST PROGRAMMER TAPES (AGE).							

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. ADDITIONAL PROGRAMMER START SIGNAL TRANSMITTED DURING TEST.							091903
VEHICLE EFFECT-COMPOSITE RESCHEDULED. A PARTIAL COMPOSITE RETEST WAS PERFORMED.							
CORRECTIVE ACTION-THE TEST PROGRAMMER TAPES WERE REPLACED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-A9-04-4399-F	FAR 33-41001-831	135D 830828	FACTORY	NO	GO/C YES	090797
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING MISSILE CHECKOUT, THE PROGRAMMER FAILED TO INITIATE SUSTAIN EN CUTOFF AT 203 SECONDS. FAILURE NOT CONFIRMED IN PROGRAMMER. THE FAILURE WAS CAUSED BY INCORRECT ELECTRICAL HARNES B INSTALLED IN MISSILE SEE FAR 3P-A9-04-4399-F, SITE FOR PRIMARY CAUSE.							
CORRECTIVE ACTION-NONE. REQUIRED ON PROGRAMMER.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-95-04-4408-F FLIP-FLOP SWITCH TRANSISTOR	FAR 33-41001-849	128D 830823	ETR	NO	NO	093153
FAILURE MODE-ELECTRICAL SHORT. PROGRAMMER SINE OUTPUT WAS -13VDC. THE SW. OUTPUT SHOULD HAVE BEEN -8 PLUS OR MINUS 3 VDC. FAILURE ANALYSIS FOUND A SHORT CIRCUITED TRANSISTOR Q-11 (EMITTER TO COLLECTOR) THE TRANSISTOR WAS DESTROYED BY THE PASSAGE OF EXCESSIVE CURRENT. THIS CURRENT WAS PROBABLY THE RESULT OF GROUNDING THE SWITCH DURING TROUBLESHOOTING THE TEST SET AT ETR.							
CORRECTIVE ACTION-PERSONNEL AT ETR WERE CAUTIONED TO EXERCISE EXTREME CARE WHEN TROUBLE SHOOTING TO AVOID DAMAGING DELICATE ELECTRONIC CIRCUITS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AX63-0003-1377/7C-CO-03-0011-033 HARNES	COMPOSITE-FACTORY	137F 830813		NO	NO	096407
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING THE FIRST POST COMPOSITE RETEST THE FLIGHT PROGRAMMER FAILED TO START. THE FAILURE WAS ATTRIBUTED TO INTERMITTENT OPERATION OF START RELAY (RTOS) AND/OR THE AGE TEST PROGRAMME R.							
SYSTEM EFFECT-OPERATION DOES NOT START.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. A COMPOSITE FIX TEST WAS REQUIRED.							
CORRECTIVE ACTION-RELAY (RTOS) WAS REPLACED AND THE TEST PROGRAMMER TAPES WERE CLEANED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	SP-98-04-4401-F SWITCH 17-DIODE	FAR 27-41001-83	1970 830815	ETR	NO NO		893161
FAILURE MODE-FAIL DURING OPERATION. PROGRAMMER WAS 12/D FOR NO OUTPUT FROM SW 17. DIODE CR-6 IN THE PROGRAMMER REMOVED SET ASSEMBLY WAS BURNED OPEN. THIS WAS DUE TO A SHORT CIRCUIT IN THE AGE.							
CORRECTIVE ACTION-SHORT CIRCUIT WAS REPAIRED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SP-99-04-4393-F CIRCUIT BOARD TRANSISTOR	FAR 27-41445-3	830807	FACTORY	YES NO	GO/C	893069
FAILURE MODE-FAIL DURING OPERATION. COUNTER 2 CIRCUIT BOARD HAD SEVERAL INTERMITTENT BINARY OUTPUTS DURING DROP TESTS AND SUBSEQUENT TEST. FAILURE WAS CONFIRMED DUE TO DISCREPANT TRANSISTORS 8-4 AND 8-5 (BOTH 2M4578) OF BINARI 1-7. BOTH TRANSISTORS HAD HIGH EMITTER-TO-COLLECTOR LEAKAGE MOST PROBABLY CAUSED BY HUMAN ERROR OF SHORTING BINARY OUTPUTS TO GROUND DURING TESTING.							
CORRECTIVE ACTION-GO/C REINSTRUCTED SUBASSEMBLY TESTING AND INSPECTION PERSONNEL IN TEST AND TROUBLESHOOTING PROCEDURES. PROCEDURES WERE CHECKED AND FOUND ADEQUATE.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SP-90-04-4300-F CAPACITOR-CONNECTOR	FAR 27-41001-879	830724	WTR	YES NO	BENDIX 20-41PM/101	892347
FAILURE MODE-LEAK, EXTERNAL. DURING CASE PRESSURIZATION TEST, PRESSURE DROPPED FROM 12 TO 7 PSIG IN 60 MINUTES. LEAK APPEARED TO BE THROUGH RECEPTACLE U3J3 (P/N 81-35900-718). FAILURE WAS CONFIRMED DUE TO SEPARATION OF SEALANT COMPOUND FROM THE CONNECTOR HOUSING. CAUSE OF FAILURE WAS MOST PROBABLY IMPROPER CLEANING BEFORE APPLICATION OF CEMENT.							
CORRECTIVE ACTION-GO/C REINSTRUCTED ASSEMBLY PERSONNEL IN PROPER SEALANT APPLICATION TECHNIQUES.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SP-98-04-4394-F SWITCH	FAR 55-41001-839	1260 830717	ETR	NO NO		893070
FAILURE MODE-ERRATIC OPERATION. PROGRAMMER SWITCH 4 HAD INTERMITTENT ACTUATION TIME OUT OF TOLERANCE. FAILURE WAS NOT CONFIRMED IN EXTENSIVE FAILURE ANALYSIS TESTING. THE FAILURE WAS CAUSED BY TEST EQUIPMENT WIRING.							
CORRECTIVE ACTION-PROGRAMMER FAILURE WAS NOT CONFIRMED. GO/C REVISED SITE TEST SET CIRCUITRY AND ELIMINATED TEST SET TRANSIENTS FROM AFFECTING THE PROGRAMMER LOW POWER SWITCHES.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	60/163-0533/L3-401-00-201	FLIGHT	2010 830712	2-3 0	YES NO		892734
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PROGRAMMER START WAS APPARENTLY INITIATED BY EJECTION OF THE 8-INCH VEHICLE MOTION SWITCH, RATHER THAN BY ACTIVATION OF EITHER OF THE TWO 2-INCH VEHICLE MOTION SWITCHES OR BY THE 8-INCH VEHICLE MOTION SWITCH.							
SYSTEM EFFECT-OPERATION STARTS LATE. PROGRAMMER RUN TIME ACTIVATED AT 0.280 SECONDS, 0.040 SECONDS AFTER 8 INCH MOTION SWITCH ACTIVATION.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-90-04-4402-F	FAR 27-43901-3	3F 830710	WTR	NO NO	60/C	893157
FAILURE MODE-OUT OF TOLERANCE. PROGRAMMER IR/D BECAUSE OF A NO 60 ON CARD 323 OF T.O. 218M83P- 8-2-2. FAILURE WAS NOT CONFIRMED. FAULT FINALLY TRACED TO MATCH COUNTER.							
CORRECTIVE ACTION-DEFECTIVE COUNTER REPLACED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-99-04-4398-F CIRCUIT BOARD-DIODE	FAR 27-41435-3	212D 830710	FACTORY	YES NO	SYLVANIA	890788
FAILURE MODE-CONTAMINATION. DURING PRODUCTION VIBRATION, PITCH 2 ASSEMBLY ACTIVATED PREMATURELY AND HAD INCORRECT OUTPUT. FAILURE WAS CONFIRMED DUE TO A DEFECTIVE DIODE CR-3 (IM57) ON BINARY P-8 (27-41498-1). LOOSE SOLDER INSIDE DIODE ENVELOPE CAUSED FAILURE BY INTERMITTENTLY SHORTING DIODE IN VIBRATION ENVIRONMENT. DIODE FAILURE IS ATTRIBUTED TO 3 FAULTY MANUFACTURING.							
CORRECTIVE ACTION-60/C PURGED FACTORY STOCK OF ALL IM57 DIODES MANUFACTURED BY THIS VENDOR.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-90-04-4398-F SWITCH	FAR 27-43901-3	3F 830709	WTR	YES NO	60/C	892590
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING MISSILE SYSTEM TEST, ONE PITCH PROGRAM OUTPUT STEP WAS ZERO IN FOUR OUT OF SIX TRIALS. FAILURE OF PROGRAMMER WAS NOT CONFIRMED AND CAUSE OF FAILURE WAS NOT FOUND.							
CORRECTIVE ACTION-60/C INFORMED SITE PERSONNEL OF RESULTS OF ANALYSIS. MALFUNCTION OF ASSOCIATED MISSILE AND TEST EQUIPMENT WERE INVESTIGATED BUT NO DISCREPANCIES WERE FOUND.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-9D-04-4337-F CIRCUIT BOARD WIRING	FAR 27-72372-1	2010 630701	WTR	YES 60/C NO	891889
FAILURE MODE-ERRATIC OPERATION. DURING LOOP SYSTEM CHECKOUT SWITCH 16 HAD ERRATIC OPERATION. FAILURE CONFIRMED DUE TO INCORRECT 27-41813-5 CIRCUIT BOARD INSTALLED WHILE SPECIFICATION CALLED FOR 27-41813-3 BOARD. FAILURE CAUSED BY P LAMING ERROR.						
CORRECTIVE ACTION-CONFIGURATION PLANNING REVISED TO REFLECT THE CORRECT 27-41813-3 CIRCUIT BOARD AND ASSEMBLY REMOVED TO CORRECT CIRCUIT BOARD. 60/C FACTORY AND INSPECTION PERSONNEL INSTRUCTED TO ADHERE MORE CLOSELY TO MANUFACTURING SPECIFICATIONS. SURVEY OF UNITS NOT CONSIDERED NECESSARY.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	AK83-0003-1240/FC-CO-01-0302-003	COMPOSITE-FACTORY	1240 430809		YES NO	892864
FAILURE MODE-OUT OF TOLERANCE. THE ROLL PROGRAM VOLTAGE INPUT WAS INSUFFICIENT FOR DETERMINING THE ROLL PROGRAM START TIME AND TORQUING RATE.						
SYSTEM EFFECT-OPERATION TOO LOW.						
VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED OR RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.						
CORRECTIVE ACTION-THE INPUT VOLTAGE WAS CHANGED FROM 0.4 TO 2.2 VOLTS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-49-04-4318-F SWITCH	FAR 27-41001-817	136F 630607	FACTORY	NO NO	891347
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING MISSILE FINAL CHECKOUT BOOSTER CUTOFF OCCURRED 0.224 SECOND 8 LATER THAN NOMINAL. FAILURE INDICATION ON PROGRAMMER IS ATTRIBUTED TO DEFECTIVE FREQUENCY METER IN MAIN-MISSILE POWER PANEL OF GROUND TEST EQUIPMENT.						
CORRECTIVE ACTION-FAILURE OF PROGRAMMER NOT CONFIRMED. 60/C REPLACED MAIN MISSILE (DOCK 8) POWER PANEL. CHECKOUT AND CALIBRATION OF THE DEFECTIVE METER WERE REVIEWED AND FOUND ADEQUATE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-9D-04-4337-F RECTIFIER SWITCH	FAR 27-41001-979	139D 630406	WTR	YES 60/C NO	
FAILURE MODE-ERRATIC OPERATION. DURING LOOP TEST, SCR SWITCH 13 OPERATED INTERMITTENTLY BUT ADDITIONAL TESTS DID NOT REFLECT INTERMITTENT CONDITION. FAILURE NOT CONFIRMED AFTER EXTENSIVE TESTING. HIGH INTERNAL IMPEDANCE OF SCR 8M89 IS MOST PROBABLE CAUSE OF REPORTED INTERMITTENT CONDITION.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-60/C REVISED SCR RECEIVING INSPECTION TESTS TO REQUIRE SPECIAL TESTS FOR SWITCHING CHARACTERISTICS. 9. THIS PROCEDURE SHOULD WEED-OUT ANY SCRS WITH MARGINAL SWITCHING CHARACTERISTICS.						892504
AUTOPILOT-SQUARE-A/B PROGRAMMER	AX83-0003-210D/PC-CO-08-0013-011 AMPLIFIER, CONNECTOR	COMPOSITE-FACTORY	210D		NO		899024
	FAILURE MODE-OUT OF TOLERANCE. 80 CYCLE NOISE OCCURRED ON CHANNEL 18 OF MIDWESTERN RECORDER NO. 2 (PITCH PROGRAM). ALSO, THE PITCH PROGRAM VOLTAGES WERE 0.3 VOLTS HIGHER THAN EXPECTED. THIS CONDITION WAS CAUSED BY A LOOSE PITCH PROGRAM ISOLATION AMPLIFIER PLUG IN THE AGE. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED. CORRECTIVE ACTION-TIGHTENED ELECTRICAL CONNECTOR AT PITCH PROGRAM ISOLATION AMPLIFIER (AGE).						892102
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4308-F CIRCUIT BOARD/TRANSISTOR	FAR 27-41584-803	630429	FACTORY	YES	GENERAL ELECTR NO IC	897762
	FAILURE MODE-ELECTRICAL SHORT. LOGIC 3 ASSEMBLY HAD INTERMITTENT SHORTING DURING LOW-LEVEL VIBRATION TESTS. FAILURE CONFIRMED DUE TO FAULTY TRANSISTOR HAVING BROKEN CHIPS OF CERAMIC (WITH METALLIC PARTICLES ON THEM) LOOSE INSIDE IT 3 CASE. CORRECTIVE ACTION-VENDOR CONTACTED AND INCREASED MONITORING OF PRODUCTION TO WATCH FOR IMPERFECT CERAMIC DISCS. VENDOR STATED THIS WAS FIRST TIME A FAILURE IN THIS MODE HAD OCCURRED.						897762
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-99-04-4303-F AMPLIFIER-TRANSISTOR	FAR 27-41558-803	630403	FACTORY	YES		897762
	FAILURE MODE-OUT OF TOLERANCE. DURING FACTORY SUB ASSEMBLY TEST AT 180 DEGREE F, THE AMPLIFIER FAILED BECAUSE OF ME AT SENSITIVE TRANSISTORS. CORRECTIVE ACTION-TRANSISTORS REPLACED WITH LESS HEAT SENSITIVE TYPE.						897762
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4230F DIODE	F/R 27-41435-3	630327	FACTORY	YES		897762
	FAILURE MODE-ELECTRICAL OPEN. P1 BINARY CAME ON AFTER COMPLETION OF PITCH PROGRAM. P1 BINARY COULD NOT BE RESET. 01 CODE CAS WAS OPEN AND HAD A CRACKED CASE. INABILITY TO RESET WAS ATTRIBUTED TO DIODE DISCREPANCIES.						897762

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE. REASON FOR DIODE FAILURE COULD NOT BE FOUND.							894400
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-90-04-4208-F PROGRAMMER	FAR 27-43801-3	93E 830326	WTR	NO NO		897481
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. WAPCHE GAVE NO-GO ON CARD 087 FOR VERNIER ENGINE STAGING BLAS. NO FAILURE ANALYSIS WAS PERFORMED CAUSE UNKNOWN.							
CORRECTIVE ACTION-FAILURE COULD NOT BE VERIFIED. NO CORRECTIVE ACTION INITIATED.							894431
AUTOPLOT-SQUARE-A/B PROGRAMMER	SA-90-04-4199-F	FAR 27-72972-1	190D 830325	WTR	NO NO	50/C	
FAILURE MODE-ERRATIC OPERATION. A SERIES OF NO-GOS WERE RECORDED FOR THE PITCH PROGRAM COMPOSITE SIGNAL. LAND LINE RECORDINGS TAKEN AT THE SAME TIME ALSO SHOWED AN ERRATIC PITCH PROGRAM. ANALYSIS COULD FIND NO PROBLEM WITH THE PROGRAMMER. THERE WAS EVIDENCE THAT SEVERE LOADING OF THE SIGNAL AT THE UNBILICAL JUNCTION BOX HAD BEEN OBSERVED.							
CORRECTIVE ACTION-UNKNOWN.							894388
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-99-04-4226F	FAR 27-41435-3	830321	FACTORY	YES NO	50/C	
FAILURE MODE-FAIL DURING OPERATION. P1 BINARY TURNED ON AT 438.10 SECONDS DURING COMPOSITE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							894356
AUTOPLOT-SQUARE-A/B PROGRAMMER	N2-A9-04-4173-F CURRENT LIMITER	FAR 27-44338-3	2080 830318	FACTORY	YES NO	50/C	
FAILURE MODE-ELECTRICAL SHORT. SWITCH 14 OF THE PROGRAMMER FAILED TO OPERATE DURING COMPOSITE TESTS BECAUSE OF AN OPEN-CIRCUITED CURRENT LIMITER. THE CURRENT LIMITER PROBABLY BLEW DUE TO POSSIBLE SHORT-TO-GROUND WHEN THE MONITOR PLUG WAS DISCONNECTED FROM THE MIDWEST RECORDER. SWITCH 14 ACTIVATES THE DECOY POWER SUPPLY.							
CORRECTIVE ACTION-THE MONITOR PLUG WAS CONNECTED TO THE RECORDER.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-99-04-4123F TIMER	PAR 93-31900-003	930314	FACTORY	YES NO	HAYDOH N5207	894782
FAILURE MODE-SHORT ELECTRICAL. TERMINAL TWO WAS SHORTED TO GROUND BECAUSE OF INCORRECTLY MOUNTED STARTING CAPACITOR. IT WAS NOT STATED WHAT TYPE CAPACITOR THE TIMER WAS REJECTED FROM.							
CORRECTIVE ACTION-NONE. VENDOR WAS NOTIFIED OF FAILURE.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AX83-0003-133F/FC-CO-02-0011-031	COMPOSITE-FACTORY	133F 830308	FACTORY	YES YES	SD/C	896473
FAILURE MODE-FAIL DURING OPERATION. THE 11.08 OR MINUS 90 DEGREE VERNIER PITCH BIAS FUNCTION EXPECTED AT FLIGHT PROGRAMMER START PLUS 125 SECONDS DID NOT OCCUR. CAUSE OF FAILURE NOT PINPOINTED SINCE AVAILABLE DATA SHOWS BOTH PROGRAMMER AND SERVO AMPLIFIER WERE REPLACED.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL- OMISSION OF VERNIER BIAS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE RETEST REQUIRED.							
CORRECTIVE ACTION-PROGRAMMER WAS REPLACED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-99-04-4109-F SWITCH-FLIP/FLCP/TRANSISTOR	PAR 27-41001-811	133F 830308	FACTORY	YES NO		894149
FAILURE MODE-OUT OF TOLERANCE. THE PROGRAMMER WAS REJECTED WHEN EVALUATION OF COMPOSITE TEST DATA SHOWED THE 90-DEGREE VERNIER BIAS FUNCTION NEVER OCCURRED. ANALYSIS COULD NOT CONFIRM THE REPORTED FAILURE. HOWEVER, SWITCH 4 TRANSISTORS 915 AND 916 WERE FOUND DEFECTIVE DUE TO INADEQUATE MANUFACTURING AND QUALITY CONTROL PRACTICES OF THE VENDOR. THE REPORTED FAILURE IS ATTRIBUTED TO THE LOW BREAKDOWN VOLTAGE OF TRANSISTOR 916.							
CORRECTIVE ACTION-THE VENDOR OF THE C81232 WAS REMOVED AS AN APPROVED SOURCE.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-99-04-4158-F	PAR 27-43901-3	133F 830221	SCHILLIN	YES NO	SD/C	894886
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE PROGRAMMER REPORTEDLY FAILED TO OPERATE DURING THE OPERATION C LEANSWEEP PROGRAM. ANALYSIS COULD FIND NO FAILURE OF THE PROGRAMMER.							
CORRECTIVE ACTION-NONE.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4202-F CIRCUIT BOARD TRANSISTOR	FAR 27-41434-803	830215	FACTORY	YES NO		997844
FAILURE MODE-FAIL DURING OPERATION. PITCH PROGRAM STOPPED 1.07 SECONDS AFTER START, DURING PRODUCTION VIBRATION TEST. CAUSED BY PITCH 1 CIRCUIT BOARD TRANSISTOR AT WHICH HAD HIGH LEAKAGE CURRENT AND LOW BREAKDOWN VOLTAGE.							
CORRECTIVE ACTION-RAR INITIATED TO QUALITY CONTROL TO TIGHTEN RECEIVING INSPECTION REQUIREMENTS TO INCLUDE REVERSE BREAKDOWN VOLTAGE AND THE LEAKAGE CURRENT SPECIFICATIONS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AX63-0003-1980/FC-CO-01-0013-003 HARNESS	COMPOSITE-FACTORY	1980 830214		YES NO	60/C	999207
FAILURE MODE-OPEN (ELECT). CHANNEL 4 OF MIDWESTERN RECORDER NO. 2 MONITORING BOOSTER CUTOFF, DID NOT ACTIVATE DURING THE TEST. THIS CONDITION WAS CAUSED BY AN OPEN CIRCUIT AT PLUG 305054 PIN X (BOOSTER CUTOFF TEST OUTPUT).							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-THE HARNESS WAS REPAIRED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-99-04-4170-F CIRCUIT BOARD-SWITCH	FAR 27-41833-3	812-D 830207	FACTORY	YES NO	60/C	994836
FAILURE MODE-PREATURE OPERATION. HIGH-POWER SWITCH 14 OPERATED 13 SECONDS EARLY DURING PRODUCTION VIBRATION TESTING. OF THE PROGRAMMER PACKAGE. ANALYSIS OF THE HIGH-POWER 2 CIRCUIT BOARD REVEALED NO FAILURES. THE REPORTED FAILURE MAY HAVE BEEN CAUSED BY A DEFECT IN THE TOP PACKAGE OR IN THE TEST EQUIPMENT.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	PARA-99-04-4107-F	FAR 27-41001-811	830208	ETR	NO NO	27-41001-811	997864
FAILURE MODE-OPEN (ELECTRICAL). THE PROGRAMMER WAS REJECTED WHEN IT WAS SUBJECTED TO A 2 PHASE EXCITATION VOLTAGE DUE TO A SUDDEN LOSS OF PHASE A FOR 30 SECONDS. THERE WAS NO PROGRAMMER FAILURE BUT A CONFIDENCE CHECK WAS REQUESTED. CHECK INDICATED NO DAMAGE TO THE PROGRAMMER.							
CORRECTIVE ACTION-NONE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4142-F CIRCUIT BOARD/RELAY	FAR 98-73900-067	630203	FACTORY	YES NO	UNION SWITCH A NO SIGNAL R35HLP68	894326
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE RELAY FAILED TO ENERGIZE WHILE INSTALLED ON THE NEXT ASSEMBLY CIRCUIT BOARD. THE RELAY COIL WAS LOOSE AND HAD A BROKEN WIRE AT THE INSIDE LEAD-IN CONNECTOR.							
CORRECTIVE ACTION-EVALUATION TEST REPORT 2742634, DATED MAY 24, 1963, REVEALS THE V35HLP68 RELAY TO BE SUPERIOR IN RELIABILITY TO THE R35HLP68 RELAY. THE J35HLP68 WAS ASSIGNED PART NUMBER 98-73910-010, DATED JUNE 13, 1963, AND WAS RELEASED FOR MISSILE USE ON JUNE 30, 1963.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-90-04-4113P DIODE	FAR	137D 630203	WTR	NO NO		894392
FAILURE MODE-OPEN (ELECT). AGE WIRE FOUND SHORTED TO GROUND WITH INDICATIONS IT HAD DRAWN EXCESSIVE CURRENT. FAILURE ANALYSIS REQUESTED TO DETERMINE WHETHER AUTOPILOT PROGRAMMER HAD BEEN DAMAGED. CIRCUIT BOARD DIODE BURNED OPEN IN WIRE OUTPUT CIRCUIT OF SWITCH 17.							
CORRECTIVE ACTION-AGE WIRE DISCREPANCY CORRECTED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	FAR HG-99-04-4111-F HARNESS	FAR 27-44877-1	630200	FACTORY	YES NO	CO/E 27-41332-7	897686
FAILURE MODE-OPEN ELECTRICAL. HARNESS TRAY WAS REMOVED TO BE REPLACED WITH NEW DESIGN. SUBSEQUENT TEARDOWN INSPECTION REVEALED FOLLOWING DISCREPANCIES, SEVERAL 2 WIRE ADAPTER PINS BROKEN AT SOLDER JOINT. 2-BROKEN WIRE STRANDS AT CONNECTOR PINS. 3-CRACKS IN SOLDER JOINTS AT CONNECTOR PINS.							
CORRECTIVE ACTION-ASSEMBLY PERSONNEL WERE PROCESSED THRU NASA SOLDER SCHOOL. RESISTANCE SOLDERING METHODS ARE USED. NO. 2 WIRE ADAPTERS WILL BE USED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4127-Y CIRCUIT BOARD DIODE	FAR 27-41498-1	630130	FACTORY	YES NO		894315
FAILURE MODE-ELECTRICAL OPEN. SIX BINARY ASSEMBLIES REPORTEDLY FAILED IN THE FACTORY WHILE INSTALLED ON THE SAME NEXT ASSEMBLY CIRCUIT BOARD. ANALYSIS FOUND ONLY ONE BINARY ASSEMBLY DEFECTIVE AS A RESULT OF AN OPEN-CIRCUITED DIODE CR-9. THE DIODE SHOWED SIGNS OF BEING OVERHEATED AND THE CRYSTAL WAS BROKEN LOOSE FROM ITS LEAD CONNECTION.							
CORRECTIVE ACTION-NONE. CAUSE OF DIODE FAILURE COULD NOT BE FOUND.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	CT-98-04-048P ROTARY RELAY	FAR 55-41001-929	1180 830123	36	YES NO		892808
FAILURE MODE-STRUCTURAL. UNIT WAS REJECTED WHEN A NUMBER OF HIGH POWER SWITCHES WERE OBSERVED TO FIRE WHEN THE TOP OF THE PROGRAMMER CASE WAS TAPPED. FAILURE WAS ATTRIBUTED TO A DEFECTIVE R33HLP88 ROTARY RELAY IN THE SAFE PLUS 28V CIRCUIT. THE RELAY ARMATURE SHAFT WAS COCKED IN ITS PIVOT WITH RESISTANT BINDING AND STICKING.							
CORRECTIVE ACTION-A REDESIGNED RELAY, J33HLP88, WAS BEING EVALUATED BY 6D/C. THE NEW DESIGN REDUCES THE TENDENCY OF COCKING.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4096-F CIRCUIT BOARD-CONNECTOR/ELECT	FAR 27-41314-903	830122	FACTORY	YES 6D/C NO		894903
FAILURE MODE-FAIL DURING OPERATION-PITCH-1 ASSEMBLY FAILED DURING SHOCK TEST WHILE INSTALLED IN PROGRAMMER PACKAGE. FAILURE NOT CONFIRMED. MOST PROBABLE CAUSE WAS CONCLUDED TO BE POORLY MATING CIRCUIT BOARD CONNECTOR.							
CORRECTIVE ACTION-FACTORY PERSONNEL INFORMED OF FAILURE ANALYSIS RESULTS IN ORDER TO REDUCE HUMAN ERROR IN MATING CIRCUIT BOARD CONNECTORS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-98-04-4081-F SWITCH	FAR 55-41001-929	830117	ETR	NO 6D/C NO		895903
FAILURE MODE-PREMIATURE OPERATION-DURING FUNCTIONAL TEST PROGRAMMER RESET 4 SECONDS EARLY. EXTENSIVE TESTING DID NOT CONFIRM FAILURE. MALFUNCTION ISOLATED TO SITE TEST EQUIPMENT.							
CORRECTIVE ACTION-NONE. REQUIRED FOR PROGRAMMER.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	MC-AJ-04-4043 TRANSFORMER	FAR	1300 830110	FACTORY	NO NO		894508
FAILURE MODE-STRUCTURAL. UNIT WAS ANALYZED TO SEE IF DAMAGE OCCURRED WHEN PHASE B OF GROUND POWER FAILED. NO FUNCTIONAL FAILURES WERE FOUND HOWEVER TRANSFORMERS T2 AND T3 HAD CRACKED CASES.							
CORRECTIVE ACTION-FAILURE ANALYSIS GROUP WARNED MAINTENANCE DEPARTMENT THAT GROUND POWER UNIT MUST BE PROPERLY MAINTAINED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-49-04-4024F SWITCH/DIODE	FAR 27-41001-803	830108	FACTORY	YES	50/C NO	898744
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME- PROGRAMMER SWITCH 17 HAD NO OUTPUT ON SAFE SIDE DURING COMPOSITE . CRS ON THE US A1442 BOARD WAS OPEN CIRCUITED, APPARENTLY FROM EXCESSIVE CURRENT. CRS WAS INS40. FAILURE IS ATTRIBU TED TO INADVERTANT SHORT CIRCUIT DURING TROUBLE SHOOTING OF SYSTEM.							
CORRECTIVE ACTION-FACTORY PERSONNEL CAUTIONED TO USE EXTREME CARE DURING TROUBLE SHOOTING.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AX83-0003-134F/FC-CO-01-0011-030	COMPOSITE-FACTORY	134F	FACTORY	YES	NO	898468
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. CHANNELS 2 (GREENY VEHICLE SEPARATE), 25 (VERNIER CUTOFF) AND 28 (PREARN BACKUP) OF MIDWESTERN RECORDER NO. 2 DID NOT ACTIVATE.							
SYSTEM EFFECT-: PROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE RETEST REQUIRED.							
CORRECTIVE ACTION-SUBSEQUENT TO AUTOPILOT REPLACEMENT AGE CABLE 27-72623-3 CABLE WAS REPAIRED. DATA AVAILABLE DOES NOT INDICATE WHICH PART WAS THE PRIMARY CAUSE OF FAILURE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AX83-0003-134F/FC-CO-01-0011-030	COMPOSITE-FACTORY	134F	FACTORY	YES	50/C NO	897832
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. CHANNELS 2 (RE-ENTRY VEHICLE SEPARATE), 25 (VERNIER CUTOFF) AND 28 (PRE-ARM BACKUP) OF MIDWESTERN RECORDER NO. 2 DID NOT ACTIVATE. EXACT CAUSE UNKNOWN.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS- DISCRETES LACKING.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE RETEST REQUIRED.							
CORRECTIVE ACTION-THE AUTOPILOT PROGRAMMER WAS REPLACED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-49-04-3289F TRANSISTOR	FAR 27-41000-831	101F	FACTORY	NO	50/C NO	893880
FAILURE MODE-ELECTRICAL SHORT-BOOSTER TWO WENT HARD OVER IN YAW WHEN HYDRAULIC PRESSURE WAS APPLIED. TRANSISTORS 83 AND 85 WERE SHORTED COLLECTOR TO EMITTER. DIODES CR4 AND CR5 WERE OPEN. RESISTOR R11 WAS BURNED ON CIRCUIT BOARD A4 A2. DAMAGE WAS ATTRIBUTED TO EXTERNAL SHORT CIRCUIT APPLIED DURING TROUBLE SHOOTING.							
CORRECTIVE ACTION-NONE.							

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SYSTEM SQUAD-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3589F DIODE IN336	FAR 27-41001-979	1190 921217	FACTORY	YES NO		896047
FAILURE MODE-ELECTRICAL SHORT. THE PROGRAMMER EXHIBITED A LOW RESISTANCE BETWEEN PINS J2-8 AND J3-8. THE LOW RESISTANCE (450 OHMS) WAS DUE TO A SHORTED CR6 DIODE (IN336) ON CIRCUIT BOARD USAZAR. IN ADDITION CR3 WAS FOUND TO BE OPEN. THIS FAILURE PROBABLY RESULTED FROM THE USE OF AN EXTERNALLY GROUNDED PIECE OF TEST EQUIPMENT CAUSING AN EXCESSIVE AMOUNT OF CURRENT TO BE DRAWN INTO THE CIRCUIT.							
CORRECTIVE ACTION-PERSONNEL INVOLVED IN TESTING AUTOPILOT PROGRAMMERS WERE CAUTIONED ABOUT USING EXTERNALLY GROUNDED TEST EQUIPMENT WHEN TESTING THESE PACKAGES.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	N2-A9-04-3575F CURRENT LIMITER	FAR 27-44336-3	1820 621213	FACTORY	NO NO		896035
FAILURE MODE-ELECTRICAL OPEN. DURING FACTORY CHECKOUT NO OUTPUT WAS RECEIVED FROM SWITCH 14 (ACTIVE DECOY POWER SUPPLY). THE DISCREPANCY WAS DUE TO A BURNED-OPEN CURRENT LIMITER ON R-8 OF THE IMATAR CIRCUIT BOARD P/N 27-41633-801 (SWITCH 14). THE BURNED-OPEN CURRENT LIMITER WAS CAUSED BY A FAULTY PIECE OF TEST EQUIPMENT (A DECOY SIMULATOR BOX) CONNECTED TO THE PROGRAMMER OUTPUT (REF-FAR N2-A9-04-3576).							
CORRECTIVE ACTION-TWO DECOY SIMULATORS WERE FOUND TO BE NOT-TO-BLUEPRINT. THESE WERE REBUILT TO SPECIFICATIONS AND RETURNED TO SERVICE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AX82-0072/FC-CO-01-0013-003	COMPOSITE-FACTORY 27-44336-3	1820 621212	FACTORY	YES NO		899200
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-THE DECOY POWER ACTIVATE FUNCTION DID NOT OCCUR AT STAGING PLUS 0.1 SECONDS.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE LEVEL RETESTING WAS REQUIRED.							
CORRECTIVE ACTION-THE PROGRAMMER WAS REPLACED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	N2-A9-04-3584F RECTIFIER /2M683/BCR	FAR 27-44336-3	1820 621203	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE. DURING FINAL MISSILE CHECKOUT THE 28 VOLT D.C. OUTPUT OF SWITCH 16 EXHIBITED BINARY PULSES. THE FAILURE WAS CAUSED BY A FAULTY SILICON-CONTROLLED RECTIFIER (SCR), CR2-1 ON SWITCH 16 OF THE USATAR CIRCUIT BOARD (P/N 27-41633-801). THE FAULTY SCR (2M683) EXHIBITED SLIGHTLY HIGHER GATE-TO-CATHODE REVERSE CURRENT THAN AVERAGE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-A NEW SCR SPECIFICATION CONTROL DRAWING, 27-07993 RELEASED MAY 13, 1963 ESTABLISHES LEAKAGE MEASUREMENT REQUIREMENTS WHICH WILL ELIMINATE ACCEPTANCE OF SCRS WHICH CAUSED THIS FAILURE.						896031
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-99-04-4837-P CAPACITOR	FAR 27-41847-3	621203	FACTORY	YES NO		896030
	FAILURE MODE-STRUCTURAL. THE HIGH POWER ONE ASSEMBLY WAS REJECTED FOR LEAKAGE OF ELECTROLYTE FROM CAPACITORS C3, C5 AND C6. NO FUNCTIONAL DISCREPANCY WAS FOUND. THE ELECTROLYTE LEAKAGE WAS ATTRIBUTED TO APPLICATION OF EXCESSIVE HEAT.						
	CORRECTIVE ACTION-NONE. REASON FOR APPLICATION OF EXCESSIVE HEAT WAS NOT LEARNED.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-99-04-33747 CURRENT LIMITER	FAR 27-41001-803	134F 621204	FACTORY	YES NO		896030
	FAILURE MODE-ELECTRICAL OPEN. PROGRAMMER 9/M 207-0183, FAILED DUE TO NO OUTPUT ON PIN 9 OF PLUG U3J2 (ACTIVE DECOY POWER SUPPLY 2). PROGRAMMER, 3/M 002-0004) FAILED BY HAVING NO OUTPUT IN THE ARM POSITION AT PIN 4 OF PLUG U3J2 (ATL AS FIRE RETRO ROCKET TEST) FAILURES WERE DUE TO BURNED-OPEN CURRENT LIMITERS. THE CAUSE COULD NOT BE FOUND.						
	CORRECTIVE ACTION- SINCE THE CAUSE OF THE FAILURE COULD NOT BE DETERMINED, NO CORRECTIVE ACTION CAN BE TAKEN. FACTORY PERSONNEL AND RELIABILITY ENGINEERS WERE REQUESTED TO INFORM THE FAILURE ANALYSIS GROUP IMMEDIATELY IF ANOTHER FAILURE OF THIS TYPE SHOULD OCCUR SO THAT ON-THE-SPOT FAILURE ANALYSIS MAY BE CONDUCTED.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SP-99-04-40417 DIODE	FAR	119-D 621204	FACTORY	YES NO		896032
	FAILURE MODE-SHORT ELECTRICAL-REMOTE SET WAS FOUND TO HAVE SHORTED DIODE C89 DURING CONTINUITY TEST FOLLOWING ACCOMPLISHMENT OF SURVEY 152-62 THE REASON FOR THE SHORT IS NOT KNOWN.						
	CORRECTIVE ACTION-UNKNOWN.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	SP-99-04-40497 CIRCUIT BOARD	FAR 27-41426-3	321201	FACTORY	YES NO/C NO		
	FAILURE MODE-OUT OF TOLERANCE. LOGIC CIRCUIT ONE FAILED DROP TEST. FAILURE WAS NOT CONFIRMED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-UNKNOWN.							094391
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-9D-04-3341F SWITCH-ARM SAFE	FAR 27-41001-979	621130	ETR	YES NO		094708
FAILURE MODE-STRUCTURAL. IT WAS REPORTED THAT THE ARM-SAFE SWITCH DID NOT RETURN TO THE SAFE POSITION AND THAT FURTHER INVESTIGATION INDICATED THAT THE SAFE SIDE OF THE SWITCH WAS OPEN-CIRCUITED. THE FAILURE WAS CONFIRMED. THE FAILURE WAS DUE TO A BENT PIN CONNECTION THAT HAD BROKEN LOOSE FROM ITS RECEPTACLE IN THE REMOTE SET COMPONENT BECAUSE OF MISALIGNMENT OF ARM-SAFE RECEPTACLES.							
CORRECTIVE ACTION-QUALITY CONTROL WAS REQUESTED, IN PAR SP-9D-04-3639, TO IMPROVE THE INSPECTION OF REMOTE SET COMPONENTS, PAYING SPECIAL ATTENTION TO PROPER ALIGNMENT OF ARM-SAFE RECEPTACLES. GO/C INITIATED A DESIGN CHANGE REQUIRING THE USE OF S-SHAPED JUMPER WIRES INSTEAD OF THE LONGER LOOP TYPE. THIS WILL IMPROVE THE STABILITY OF THE RECEPTACLE PINS.							
CORRECTIVE ACTION-QUALITY CONTROL WAS REQUESTED, IN PAR SP-9D-04-3639, TO IMPROVE THE INSPECTION OF REMOTE SET COMPONENTS, PAYING SPECIAL ATTENTION TO PROPER ALIGNMENT OF ARM-SAFE RECEPTACLES. GO/C INITIATED A DESIGN CHANGE REQUIRING THE USE OF S-SHAPED JUMPER WIRES INSTEAD OF THE LONGER LOOP TYPE. THIS WILL IMPROVE THE STABILITY OF THE RECEPTACLE PINS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3337P MOTOR-DC	FAR 88-69900-008	621123	FACTORY	YES NO	GLOBE INDUSTRIAL	093949
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING MANUFACTURING TEST OF THE NEXT ASSEMBLY (REMOTE SET COMPONENT), THE MOTOR SHAFT WOULD NOT ROTATE AND THE MOTOR OVERHEATED. THE FAILURE WAS CONFIRMED AND WAS DUE TO MISSING FILED MAGNETS.							
CORRECTIVE ACTION-PAR A-99-04-3631-1, DATED MAY 2, 1963, WAS PREPARED, REQUESTING MANUFACTURING INSPECTION TO CAUTION ALL PERSONNEL CONCERNED NOT TO REMOVE THE MAGNETS FROM D-C MOTORS DURING ASSEMBLY OF THE MOTOR TO THE REMOTE SET COMPONENT. ELECTRONIC INSPECTION PERSONNEL WERE ADVISED OF THIS FAILURE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AOL82-0031/L1-401-00-129 RELAY	FLIGHT	128D 621115	PALC1-1	YES NO	AGASTAT	091408
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE AGASTAT RELAY FAILED TO ACTIVATE THE PROGRAMMER RESET COMMAND PRIOR TO POWER CHANGEOVER TO INTERNAL.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. ABSENCE OF THE PROGRAMMER RESET SIGNAL COMMAND PRIOR TO POWER CHANGEOVER ALLOWED THE ELECTRICAL TRANSIENT DURING POWER CHANGEOVER TO START PROGRAMMER.							
VEHICLE EFFECT-NONE. THE RESET COMMAND WAS THEN RECEIVED BY THE PROGRAMMER (0.24 SECOND AFTER POWER CHANGEOVER BEGAN), RETURNING THE PROGRAMMER TO ZERO.							
CORRECTIVE ACTION-UNKNOWN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3803-F DIODE	FAR 27-41001-999	621109	FACTORY	YES NO	097200
FAILURE MODE-ELECTRICAL OPEN. DURING CHECKOUT, NO PREARN BACKUP OUTPUT FROM PLUS 3053PA-C. FAILURE CONFIRMED. REMO TE SET (P/M 27-43205-803) HAD OPEN-CIRCUITED DIODE BETWEEN PINS 4 AND 14 ON TERMINAL BOARD 1. ATTRIBUTED TO FACTORY PERSONNEL CYCLING THE PROGRAMMER IN SAFE CONFIGURATION WHILE PLUS 30491 WAS PULSED ALLOWING DIODE TO BURN OPEN (DIODE 1M643).						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-4011F SWITCH 11	FAR 27-41801-3	103F 621106	PAFB	YES NO	094543
FAILURE MODE-ELECTRICAL OPEN. SWITCH ELEVEN RELAY COIL CIRCUIT WAS OPEN AT THE CIRCUIT BOARD TERMINATION. THIS PREV ENTED SWITCHING TO HIGH ROLL GYRO EXCITATION. FAILURE WAS ATTRIBUTED TO BROKEN WIRE DAMAGED DURING ASSEMBLY OF CIRCU IT BOARD.						
CORRECTIVE ACTION-INSPECTION AND FACTORY PERSONNEL WERE SHOWN PHOTOS OF THE DISCREPANCY AND ADVISED OF THE FAILURE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3563F CIRCUIT BOARD TRANSISTOR	FAR 27-41443-603	621107	FACTORY	YES NO	098036
FAILURE MODE-ERRATIC OPERATION. SWITCH 6 WAS REPORTED TO BE HEAT SENSITIVE, WORKING NORMALLY ONLY WHEN THE ASSEMBLY WAS COOL. FAILURE DUE TO A HEAT SENSITIVE 61 TRANSISTOR (MATES4) RESULTING FROM A MANUFACTURING DEFECT.						
CORRECTIVE ACTION-FAR A-99-04-3621 REQUESTING THE VENDOR TO TEST TRANSISTORS FOR HEAT SENSITIVITY AND TO IMPROVE GU ALITY CONTROL AND INSPECTION OF TRANSISTORS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	W6-99-04-3328F	FAR 27-41001-603	621030	FACTORY	NO NO	
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE-DURING PRODUCTION VIBRATION. THE PROGRAMMER APPEARED TO RESET 0.030 SECOND TOO SOON. MALFUNCTION NOT CONFIRMED. TWO CAUSES FOR THE FAILURE WERE FOUND IN THE FACTORY TEST EQUIPMENT.						
CORRECTIVE ACTION-A DETAILED PROCEDURE FOR CONNECTING THE VIBRATION EXCITER AND THE PROGRAMMER TEST SET TO SEPARATE POWER LINES IS BEING INCORPORATED IN QUALITY CONTROL SPECIFICATION 141-20-3 REV. NO TOLERANCE WAS PREVIOUSLY CALLE D OUT IN TEST PROCEDURE EOP 380-807-4, HOWEVER TCA-18, RELEASED NOV. 20, 1962 SETS THE TOLERANCE AT 410 SECONDS PLUS						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE	PRI OTH	VENDOR NAME VENDOR PART NO	
ZERO/MINUS.100 SECONDS.							995212
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3582F	FAR 27-43901-3	621026	WAFB	YES NO	YES 60/C	996033
FAILURE MODE-FAIL TO OPERATE AT SPECIFIED TIME. DURING MAPCHE CHECKOUT, NO PITCH GUIDANCE ENABLE SIGNAL WAS RECEIVED. THE REPORTED FAILURE WAS NOT CAUSED BY THE AUTOPILOT PROGRAMMER, BUT WAS CAUSED BY A DISCREPANCY ELSEWHERE IN THE AUTOPILOT SYSTEM. AUTOPILOT SYSTEM PROBLEMS WERE ELIMINATED BY MISSILE BASE PERSONNEL BUT THE EXACT CAUSE WAS NEVER DETERMINED.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	NZ-49-04-3517-F CIRCUIT BOARD, SWITCH	FAR 27-44336-3	621017	FACTORY	YES NO		997231
FAILURE MODE-SHORT-ELECTRICAL. NO OUTPUT ON SWITCH 14 OF HIGH POWER 2 CIRCUIT BOARD P/N 27-41833-801. CAUSE OF FAILURE UNDETERMINED. PROBABLE CAUSE IS INADVERTENT SHORT TO GROUND DURING INITIAL RUN OF FINAL CHECKOUT RESULTING IN INABILITY OF SWITCH 14 TO FIRE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3502-F WIRING	FAR 27-41001-999	621015	ETR	YES NO	YES 60/C	997214
FAILURE MODE-ELECTRICAL OPEN. DURING CHECKOUT, DISCONTINUITY WAS NOTED BETWEEN PIN L OF J1 AND PIN K OF J3. FAILURE CONFIRMED. ATTRIBUTED TO FAULTY WELDER JOINT BETWEEN PIN K OF J3 AND THE WIRE ADAPTOR CONNECTION TO PIN K OF J3.							
CORRECTIVE ACTION-RAR A-98-04-3618 ISSUED. PERSONNEL TRAINING INCREASED. ALL INFORMED TRAYS WILL BE 100 PCT. INSPECTED. USE OF ADAPTORS ON NEW TRAYS HAS BEEN DISCONTINUED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-92-04-3445-F SWITCH	FAR 27-41001-993	621001	WTR	YES NO	YES 60/C	995843
FAILURE MODE-PREATURE OPERATION. THE BOOSTER JETTISON (BOJ) SWITCH WAS REPORTED ACTIVATED WHEN THE SUSTAINER CUTOFF SWITCH 20 FIRED. A POSSIBLE CAUSE OF THE INDICATION WAS AN ERRONEOUS SIGNAL GENERATED BY APCHE. RESULTING IN AN ERRONEOUS APCHE PRINTOUT.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	MC-08-04-3442-F CIRCUIT BOARD TRANSISTOR	FAR 27-41001-803	1300 820928	FACTORY	YES NO	YES 50/C
FAILURE MODE-CONTAMINATION. SEQUENCING ERRORS WERE OBSERVED DUE TO EXCESSIVE BASE TO COLLECTOR CURRENT OF TRANSISTOR RS 41 OF THE T4 AND 16 BINARY COUNTERS ON CLOCK CIRCUIT BOARD ALD41. BOTH TRANSISTORS WERE TYPE MAT334. VENDOR COUNDUCTED TESTS INDICATED MOISTURE BETWEEN THE TRANSISTOR LEADS.						
CORRECTIVE ACTION-50/C COULD NOT REPRODUCE THE FAILURE WITH OTHER TEST SPECIMENS. NO ACTION WAS TAKEN BECAUSE THE EXACT CAUSE OF FAILURE COULD NOT BE DETERMINED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3431-F WIRING	FAR 27-41001-999	620927	ETR	YES NO	YES
FAILURE MODE-STRUCTURAL. WIRE TO PIN H OF J-1 BROKE AT PIN CONNECTION DUE TO TENSION AND SHEAR STRESSES.						
CORRECTIVE ACTION-NEW HARNESS ASSEMBLIES WERE INSTALLED IN NEWLY MANUFACTURED ITEMS AND ALL ITEMS CURRENT IN STOCK AND NOT ALREADY FOAMED WERE SURVEYED AND REWORKED AS NEEDED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	MC-AS-04-3430-F TRANSFORMER WIRING	FAR 27-41001-803	620927	FACTORY	YES NO	YES
FAILURE MODE-STRUCTURAL. UNIT FAILED WHEN APPLICATION OF THE STAGING DISCRETE SIGNAL CAUSED THE PROGRAMMER TO RESET. FAILURE DUE TO A BROKEN WIRE FROM THE CENTER TAP OF THE TRANSFORMER TO SIGNAL GROUND BUS. FAILURE CAUSE SUSPECTED A S IMPROPER HANDLING.						
CORRECTIVE ACTION-PERSONNEL IN THE MANUFACTURING AREA WERE CAUTIONED TO USE EXTREME CARE IN HANDLING THESE PARTS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-9D-04-3435F PROGRAMMER	FAR 27-41001-993	1280 820924	WTR	YES NO	YES 50/C
FAILURE MODE-PREATURE OPERATION-THE PROGRAMMER WAS 1R/D WHEN RESET OCCURRED 30 SECONDS TO SOON. NUMEROUS RERUNS WERE MADE IN ATTEMPTS TO DUPLICATE THIS DISCREPANCY. THE FAILURE COULD NOT BE DUPLICATED OR CONFIRMED. SUSPECT AN ACCIDENTAL RESET OF PROGRAMMER.						
CORRECTIVE ACTION-UNKNOWN. CONCERNED PERSONNEL WERE ADVISED OF THE ANALYSIS AND REQUESTED TO USE CAUTION DURING TESTING OF PROGRAMMER.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A058-0047/P1-804-00-08 PROGRAMMER	COUNTDOWN	8F 820914	11	YES NO		898220
<p>FAILURE MODE-FAIL DURING OPERATION. PROGRAMMER FAILED TO GENERATE RE-ENTRY PRE-ARM BACKUP SIGNAL DURING LOOP TEST P ORTION OF COUNTDOWN.</p> <p>SYSTEM EFFECT-LOSS OF REDUNDANCY. BACKUP CAPABILITY FOR RE-ENTRY VEHICLE SEPARATION WAS NOT GENERATED.</p> <p>VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3397-F CIRCUIT BOARD-DIODE	FAR 27-41001-985	8F 820914	ETR	YES NO		893414
<p>FAILURE MODE-SHORT CAUSE FAILURE DURING OPERATION. NO OUTPUT WAS OBTAINED FROM PRE-ARM BACK-UP SWITCH THE PROGRAMME R WAS 18/D. THE UNIT WAS OPENED AND THE OUTPUT DIODE ON THE PRE-ARM BACKUP SWITCH WAS OPEN-CIRCUITED. FAILURE CAUSED BY SHORT CIRCUIT ON THE OUTPUT LINE.</p> <p>CORRECTIVE ACTION-BASE PERSONNEL WERE NOTIFIED OF THIS ANALYSIS AND WERE REQUESTED TO CHECK THE MONITORING LINES FO R SHORT CIRCUITS.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	1K-98-04-3483-F CIRCUIT BOARD SWITCH	FAR 27-41633-3	820824		YES 8D/C NO		894207
<p>FAILURE MODE-PREATURE OPERATION. A HIGH POWER 2 ASSEMBLY REPORTEDLY FAILED WHEN THE HIGHLEVEL P SWITCH FIRED PREMA TURELY. FUNCTIONAL TESTING AND VIBRATION TESTS COULD NOT REPEAT THE PROBLEM.</p> <p>CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3418-F CIRCUIT BOARD	FAR 27-43901-3	820822	FACTORY	YES NO		894130
<p>FAILURE MODE-OPEN (ELECTRICAL). PROGRAMMER CIRCUIT BOARD OPENED WHEN THE PRINTED CIRCUIT LARD BROKE AWAY FROM THE P LATE-THROUGH-HOLE PORTION OF THE PRINTED CIRCUIT. THIS CIRCUIT BOARD WAS REMOVED TWO YEARS PRIOR TO FAILURE BEFORE THE INSTALLATION OF A BONDED REMOVED AREA AND IMPROVED CONTROLS.</p> <p>CORRECTIVE ACTION-INSPECTION PERSONNEL WERE INSTRUCTED TO USE EXTREME CARE WHEN REMOVING CIRCUIT BOARDS.</p>							

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AUTOPILOT-SQUARE-A/B PROGRAMMER	HC-98-04-3338F PROGRAMMER SWITCH NO. 2	FAR 27-41001-987	620817	ETR	NO NO	
FAILURE MODE-OUT OF SPECIFICATION-PROGRAMMER NO. 2 SWITCH OUTPUT AT STAGING TIME, PLUS 3.7 SECONDS SHOULD HAVE CHANGED FROM 12.5 VOLTS DC TO -9 VOLTS DC. THE SW. VOLTAGE CHANGE WAS FROM PLUS 12.5 VOLTS DC TO PLUS 9 VOLTS DC. FAILURE WAS NOT CONFIRMED SUSPECT REVERSED METER LEADS DURING TEST.						
CORRECTIVE ACTION-SITE WAS NOTIFIED OF POSSIBLE REVERSAL OF METER TEST LEADS. SITE PERSONNEL DID NOT AGREE THIS COULD HAVE HAPPENED. REF FAR HC-99-04-3345F WHICH FOUND FAILURE IN TEST EQUIPMENT.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	HC-98-04-3345F PROGRAMMER SWITCH	FAR 27-41001-987	1130 620817	ETR	NO NO	
FAILURE MODE-OUT OF TOLERANCE. THE PROGRAMMER SW NO.2 FAILED TO CHANGE FROM PLUS 12.5 VDC TO -9 VOLTS. INSTEAD VOLTAGE SWITCHED TO PLUS 8 VOLTS (REF FAR HC-98-04-3338F). FOUND TEST EQUIP WITH LOW SENSITIVITY WOULD GIVE NO-GO ON THIS TEST WHEN LINE VOLTAGE WAS 115.3 VOLTS, ALTHOUGH NORMAL RANGE OF TEST EQUIPMENT LINE VOLTAGE IS 115 TO 118 VOLTS.						
CORRECTIVE ACTION-TEST EQUIPMENT TO BE REPAIRED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3487 HI-POWER 3 SWITCH RELAY	FAR 27-41640-811	620815	FACTORY	YES NO	
FAILURE MODE-ERRATIC OPERATION. THE HIGH POWER 3 ASSEMBLY REPORTEDLY FAILED. IT WAS REPORTED THAT THE EXCITATION RELAY (R3) (P/N 86-73900-087) EXHIBITED STICKY OPERATION. THE FAILURE WAS CONFIRMED. HOWEVER, DURING FAILURE ANALYSIS THE RELAY WAS INADVERTENTLY DESTROYED AND THE CAUSE OF THE FAILURE COULD NOT BE DETERMINED.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3533F ACCELEROMETER-FUNCTIONAL	FAR 27-41804-8	620814	FACTORY	YES NO	EDCLIFF INSTRUMENTS 10931TH
FAILURE MODE-OUT OF SPECIFICATION. THE OUTPUT VOLTAGE BECAME UNSTABLE AND ERRATIC. THE FAILURE WAS CONFIRMED. THE ACCELEROMETER DID NOT MEET THE FULL SCALE OUTPUT REQUIREMENT OF 25 PLUS OR MINUS 0.8 VDC. THE MAXIMUM REACHED WAS 24 VDC.						
CORRECTIVE ACTION-NONE.						

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AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-89-04-3490-F SWITCH RECTIFIER	FAR 27-40117-1	420814	FACTORY	YES NO	992776
FAILURE MODE-CONTAMINATION. IT WAS REPORTED THAT SWITCH 19 ON THE HI-POWER 4 ASSEMBLY WAS VIBRATION SENSITIVE. IT WAS DETERMINED THAT THE SILICON-CONTROLLED RECTIFIER (SCR) OF SWITCH 19 WAS VIBRATION SENSITIVE. THIS SCR (GE-2M683/C 33A) HAD SEVERAL LOOSE WELD SPLANKES PRESENT INTERNALLY. WHEN VIBRATED THESE LOOSE PARTICLES WOULD CAUSE THE SCR TO FIRE WITHOUT AN INPUT SIGNAL.						
CORRECTIVE ACTION-S.E. TO 100 PERCENT X-RAY ALL DEVICES SHIPPED TO GD/C.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3381F CIRCUIT BOARD TRANSISTOR	FAR 27-41001-988	87 620809	ETR	YES NO	993139
FAILURE MODE-FAIL DURING OPERATION. THE PROGRAMMER WAS 1R/D FOR FAILURE OF THE ZERO-TIME INDICATOR TO STAY ON AFTER APPLICATION OF MISSILE POWER. FAILURE WAS NOT CONFIRMED.						
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. NO CORRECTIVE ACTION TAKEN.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3418-F CIRCUIT BOARD TRANSISTOR	FAR 27-41392-803	620809	FACTORY	YES NO	994136
FAILURE MODE-STRUCTURAL. ERRATIC OPERATION OF CIRCUIT BOARD DUE TO VIBRATION SENSITIVE TRANSISTOR RESULTING FROM CRACKED COLLECTOR-TO-BASE JUNCTION.						
CORRECTIVE ACTION-REVEAL FAILURES OF THE WESTRAH CEN1232 TRANSISTOR RESULTED IN THE ELIMINATION OF WESTRAH AS AN A PROVED SOURCE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3398F CIRCUIT BOARD-0100Z	FAR 27-43901-3	620807	FACTORY	YES NO	994887
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. A/P PROGRAMMER DID NOT GENERATE RE-ENTRY OR RETROCKET SIGNALS. P FAILURE ANALYSIS FOUND FAULTY CIRCUIT BOARD U1A10A IN PROGRAMMER CLOCK. CAUSED BY INCORRECT INSERTION OF DIODE CR1 1 AND CR2 WHICH HAD BEEN INSTALLED ONE SPACE TO RIGHT. FAILURE FOUND DURING FINAL CHECKOUT.						
CORRECTIVE ACTION-BOARD LEVEL TEST SET MODIFIED TO TEST FOR THIS TYPE OF ERROR.						

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AUTOPILOT-SQUARE-A/B PROGRAMMER	A-9N-04-3477-P	PAR 27-43801-3	820803	YES	NO	YES	894102
FAILURE MODE-OUT OF TOLERANCE. PROGRAMMER WAS INVOLVED WHEN THE PITCH PROGRAM OUTPUT VOLTAGE AT THE TENTH STEP WAS FOUND TO BE OUT OF TOLERANCE. FAILURE ANALYSIS TESTED UNIT AND FOUND NO STEPS OUT OF TOLERANCE. STEP 10 MEASURED 11 MILL VOLTS-WELL WITHIN SPECIFICATION.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. NO CORRECTIVE ACTION AS SITE IS NOW SOLD OFF TO AIRFORCE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A482-0074/PL-8CO-03-07 AUTOPILOT PROGRAMMER WIRING	COMPOSITE-B FACT	7F 820804	11	NO	NO	894082
FAILURE MODE-PREATURE OPERATION. WHEN ARM SIGNAL WAS SENT TO PICKBACK POD, THE AUTOPILOT PROGRAMMER WOULD START. PRIMARY PROBLEM WAS IN PICKBACK POD CIRCUITRY. ARM SIGNAL WAS HARD-WIRED TO THE ONE INCH R1-E CIRCUIT.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. PROGRAMMER START OCCURRED EARLY.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-TPS 11C241T WAS WRITTEN TO TIE BACK WIRE TO PREVENT THIS CONDITION.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3381-F CIRCUIT BOARD TRANSISTOR	PAR 27-41433-3	820800	FACTORY	YES	NO	893160
FAILURE MODE-STRUCTURAL FAILURE LEAD TO ERRATIC OPERATION. THE PITCH 2 CIRCUIT BOARD WAS REJECTED AFTER FAILING A DROPTEST. TRANSISTOR Q9, A GENIESE MANUFACTURED BY WESTON WAS FOUND TO BE ELECTRICALLY INTERMITTENT. THE SOLDER JOINT BETWEEN THE BASE PLATE OF THE TRANSISTOR AND ITS MOUNTING PIN WAS BROKEN. VERY LITTLE SOLDER WAS OBSERVED AT THE JOINT CONTRIBUTING TO STRUCTURAL WEARNESS.							
CORRECTIVE ACTION-THE VENDOR OF THE GENIESE TRANSISTOR WAS REMOVED FROM THE APPROVED LIST OF SUPPLIERS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	MP-AS-04-32937 TRANSFORMER	PAR 27-41000-951	2120 820727	FACTORY	NO	NO	893812
FAILURE MODE-ELECTRICAL SHORT. ENGINES WOULD HALL WITH 3000 PSI6 APPLIED. POWER TRANSFORMER HAD OPEN AND SHORTED WIRING. A WIRING ERROR WAS FOUND IN POWER TRAILER WHICH CAUSED RELAY K403 IN MISSILE WIRING HARNESS TO FAIL TO OPERATE. THIS RESULTED IN SHORT CIRCUIT ON A PHASE OF 400 CYCLE LINE.							
CORRECTIVE ACTION-WIRING ERROR WAS CORRECTED IN POWER TRAILER.							

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AUTOPILOT-SQUARE-A/B PROGRAMMER	A-48-04-3388P	FAR 27-43901	820728	SCHILLIN YES	NO	60/C	884699
FAILURE MODE-FAIL DURING OPERATION. DURING MAPCHE CHECKOUT PROGRAMMER S/N 804-0130 WAS IN/D FOR NO-COS RECEIVED DURING CHECKS OF PITCH-YAW GUIDANCE ON AND PITCH GUIDANCE PHASE. FAILURE ANALYSIS COULD NOT FIND REPORTED FAILURE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-48-04-3296P TRANSFORMER	FAR 27-41001-973	8150 820723	FACTORY	NO	60/C	885479
FAILURE MODE-ELECTRICAL SHORT-400 CYCLE INPUT WAS SHORTED. CAUSED BY WIRING ERROR IN POWER TRAILER WHICH PREVENTED RELAY K403 IN MISSILE HARNESS FROM OPERATING THEREBY CAUSING SHORTS ON 400 CYCLE LINE. POWER TRANSFORMERS IN PROGRAMMER WERE SHORTED.							
CORRECTIVE ACTION-WIRING ERROR WAS CORRECTED IN POWER TRAILER.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3315P CIRCUIT BOARD	FAR 27-41847-3	820723	FACTORY	YES	NO	897309
FAILURE MODE-FAILED DURING OPERATION. HI POWER 1 ASSEMBLY REPORTEDLY FAILED DURING A MANUFACTURING VIBRATION TEST. FAILURE COULD NOT BE CONFIRMED. THOUGHT TO BE CAUSED BY FAULTY TEST EQUIPMENT OR BY A TRANSIENT ELECTRICAL PULSE FROM UNKNOWN SOURCE.							
CORRECTIVE ACTION-NONE. FACTORY PERSONNEL INFORMED OF RESULTS OF ANALYSIS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-48-04-3384-P	FAR 27-43901-3	820719	FACTORY	NO	60/C	893185
FAILURE MODE-OUT OF TOLERANCE. THE PROGRAMMER WAS REJECTED BECAUSE THE ROLL PROGRAM STARTED AT 1 PLUS 1 INSTEAD OF THE EXPECTED TIME 1 PLUS 2. FAILURE WAS CAUSED BY FAULTY PROGRAMMER TAPES IN THE TEST EQUIPMENT. THIS TIME OF FAILURE WAS ALSO REPORTED IN FAR A-48-04-3388-P.							
CORRECTIVE ACTION-EQUIPMENT PROCEDURES WERE CHANGED TO REQUIRE AN AUTOMATIC 30-DAY CLEAN UP, INSPECTION AND EVALUATION OF THE PROGRAMMER TAPES.							

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AUTOPLOT-SQUARE-A/B PROGRAMMER	A-9L-04-3339F CIRCUIT BOARD TRANSFORMER	FAR 27-43901-3	620707	LINCOLN	YES	60/C NO	994723
FAILURE MODE-ELECTRICAL SHORT. PROGRAMMER REJECTED WHEN PITCH GYRO COULD NOT BE NULLED. FUNCTIONAL TESTING REVEALED FAULTY TRANSFORMER ON THE HI-POWER 1 CIRCUIT BOARD P/N 27-41847-3. THE TRANSFORMER HAD SHORTED PRIMARY TO SECONDARY WINDINGS. CAUSE OF FAILURE WAS POOR TRANSFORMER WINDING TECHNIQUES AND INADEQUATE INSPECTION.							
CORRECTIVE ACTION-THE TRANSFORMER VENDOR-A.C. ELECTRONICS WAS INFORMED OF THE FAILURE REF FAR A-9L-04-723.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-9N-04-3369F	FAR 27-43901-3	620706	SCHILLIN	YES	60/C NO	994700
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE PROGRAMMER (S/N 111-7037) WAS IR/D WHEN THE ROLL-GUIDANCE ENAB LE SIGNAL WAS RECEIVED LATE. FAILURE ANALYSIS TESTS COULD NOT CONFIRM THIS REPORTED FAILURE.							
CORRECTIVE ACTION-NONE.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	SP-A9-04-3248-F CIRCUIT BOARD-TRANSISTOR	FAR 27-31001-993	1380 620427	FACTORY	NO	NO	994101
FAILURE MODE-SHORT (ELECTRICAL). TRANSISTOR 810 ON THE AB22 BOARD WAS SHORTED. SHORT WAS ATTRIBUTED TO USE OF WRONG UNBILICAL ON VEHICLE CAUSING GROUNDING OF 305J330.							
CORRECTIVE ACTION-UNKNOWN. STEPS WERE TAKEN TO PREVENT USE OF WRONG UNBILICAL.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE62-0857 TIMER	COUNTDOWN	210 620422	WTR	YES NO		994842
FAILURE MODE-ERRATIC OPERATION. FUEL RAPID LOAD FAULTED DUE TO A TIMER FAILURE.							
SYSTEM EFFECT-OPERATION STOPS PREMATURELY.							
VEHICLE EFFECT-LAUNCH COUNTDOWN DELAYED.							
CORRECTIVE ACTION-DIODES REPLACED.							

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AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3248F CIRCUIT, LOGIC-6	FAR 27-43901-89	620622	FACTORY	NO	60/C	093737
FAILURE MODE-PREATURE OPERATION. PROGRAMMER RESET TO ZERO TIME AFTER 108 SECONDS. REF. 1R 833482. FAILURE WAS ATTRIBUTED TO HUMAN ERROR.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3258F	FAR 27-43901-3	31F 620614	DAFB	YES NO		093739
FAILURE MODE-OUT OF TOLERANCE. PROGRAMMER WAS REJECTED BECAUSE ENGINES CYCLED CONTINUOUSLY DURING PERFORMANCE OF 27-41074. MATCH CHECK OF AUTOPILOT GAVE PROGRAMMER NO-GO. NO DISCREPANCY WAS FOUND IN ANALYSIS OF PROGRAMMER. FAILURE WAS ATTRIBUTED TO MOISTURE IN UNBILICAL CONNECTOR.							
CORRECTIVE ACTION-PROGRAMMER FAILURE NOT CONFIRMED. CONNECTORS WERE DRIED OUT.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3267F	FAR 27-43901-3	620613	DYESS	YES NO	60/C	093738
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. PROGRAMMER FAILED TO RESET TO ZERO TIME 8 TIMES IN 12 TRIES AT 9 ITE 04. REPLACEMENT PROGRAMMER OPERATED PROPERLY.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	HC-A9-04-3212-F SWITCH	FAR 27-41001-987	113D 620612	FACTORY	NO	ASTRONAUTICS NO 27-41001-987	098093
FAILURE MODE-FAIL DURING OPERATION. NO OUTPUT FROM SWITCH 13 DUE TO FAULTY ACCESSORY.							
CORRECTIVE ACTION-CHECKOUT PROCEDURES GROUP REQUESTED TO REDESIGN ALL PYROTECHNIC TEST ACCESSORIES TO ELIMINATE PROBLEM OF SHORT-CIRCUITING.							

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AUTOPILLOT-SQUARE-A/B PROGRAMMER	A-90-04-3378F HI-POWER SWITCH	FAR 27-43901-3	67E 620812		NO NO	
FAILURE MODE-ELECTRICAL SHORT-TWO PROGRAMMERS FAILED ON 67E DURING CHECKOUT. THEY GAVE NO OUTPUT SIGNAL FROM THE HI-POWER SWITCHES IN THE PITCH, YAW, AND ROLL. BOTH PROGRAMMERS HAD CRS, CRS, CR11, R8, AND R37 AND R38. FAILURE WAS CAUSED BY SHORT CIRCUIT IN NAA ENGINE RELAY BOX.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILLOT-SQUARE-A/B PROGRAMMER	A-9N-04-5309F CIRCUIT BOARD	FAR 27-43901-3	18F 620808	SAFE	NO NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE PROGRAMMER WOULD NOT LEAVE THE ZERO TIME POSITION DURING A MAP CHE TEST. A MISWIRED UNBILICAL JUNCTION BOX RESULTED IN INCORRECT VOLTAGES BEING APPLIED TO THE PROGRAMMER. FOUR CIRCUIT MODULES WERE DAMAGED.						
CORRECTIVE ACTION-BASE PERSONNEL REVISED THE UNBILICAL JUNCTION BOX ON SITE.						
AUTOPILLOT-SQUARE-A/B PROGRAMMER	A-9N-04-3250F	FAR 27-43901-3	620803	SCHILLIN NO 6	NO NO	60/C
FAILURE MODE-FAILED DURING OPERATION-MAPCHE DID NOT STEP PAST CARD 352 IN DECK 431-503. FUNCTION FAILED WAS NOT DOCUMENTED. NO FAILURE WAS FOUND IN PROGRAMMER. A FAILURE OF MAPCHE WAS SUSPECTED.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILLOT-SQUARE-A/B PROGRAMMER	A-9D-3A-3286F CANISTER	FAR 27-41001-983	6P 620311	ETR	YES NO	60/C
FAILURE MODE-STRUCTURAL-PROGRAMMER WAS REJECTED FOR CRACKS IN MOUNTING FEET. CRACKS WERE ATTRIBUTED TO TENSILE STRESS RESULTING FROM PRESS FIT BUSHINGS.						
CORRECTIVE ACTION-CRACKS MAY BE CUT OUT WITH KEY HOLE SLOT.						

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AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3217-F	FAR 27-41001-989	620507	ETR	YES NO	50/C 27-41001-989	894071
FAILURE MODE-CONTAMINATION. A MERCURY VAPOR METER TEST INDICATED THE PRESENCE OF MERCURY WITHIN THE CANISTER. THE CANISTER WAS CONTAMINATED BY THE PURGE SYSTEM.							
CORRECTIVE ACTION-NONE. NO MERCURY WAS FOUND IN THE CANISTER.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3194F CIRCUIT BOARD-SWITCH	FAR 27-41443-803	620425	SAN DIEG O 516	NO NO		894068
FAILURE MODE-FAIL DURING OPERATION-SWITCH 7 OF LOW POWER 2 CIRCUIT BOARD BECAME INOPERATIVE AFTER 316 SECONDS OF VIBRATION. FAILURE ANALYSIS DID NOT CONFIRM THE FAILURE. IT WAS CONCLUDED THAT THERE WAS NO FAILURE IN THIS PART AND THAT THE REPORTED FAILURE WAS PROBABLY DUE TO A MALFUNCTION OF SOME ASSOCIATED CIRCUITRY NOT SUBMITTED FOR ANALYSIS.							
CORRECTIVE ACTION-FACTORY AND PRODUCTION VIBRATION PERSONNEL HAVE BEEN REQUESTED TO SUBMIT FOR FAILURE ANALYSIS ALL THE CIRCUITRY ASSOCIATED WITH A PARTICULAR FAILURE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AE82-0447/P2-401-00-133	FLIGHT	133D 620423	ETR 294	YES NO	50/C	894178
FAILURE MODE-PREMATURE OPERATION. TWO OF THE AUTOPILOT PROGRAMMER GENERATED BACKUP SIGNALS, VERNIER CUTOFF AND INITIATE SEPARATION SEQUENCE, PRECEDED THE GUIDANCE DISCRETE COMMANDS BY 0.7 AND 2.0 SECONDS RESPECTIVELY. CAUSE FOR THIS ANOMALY WAS NOT SPECIFICALLY DETERMINED.							
SYSTEM EFFECT-OPERATION STARTS TOO EARLY.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3194F CIRCUIT BOARDPIN	FAR 27-41835-5	620420	SAN DIEG O	YES NO		
FAILURE MODE-FAIL TO OPERATE AT THE PRESCRIBED TIME-DURING MANUFACTURING TESTS, SWITCH 15 OF HIGH POWER 2 CIRCUIT BOARD FAILED TO RESPOND TO A 25 MILLISECOND INPUT PULSE. THE REPORTED FAILURE WAS NOT CONFIRMED BUT WAS PROBABLY DUE TO POOR CONNECTOR MATING BECAUSE OF DISTORTED CONNECTOR PINS.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE ADVISED OF THE RESULTS OF THE ANALYSIS AND WERE CAUTIONED TO EXERCISE MORE							

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CARE IN THE HANDLING OF PRINTED CIRCUIT BOARDS.							898071
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3180F CIRCUIT BOARD-TRANSISTOR	FAR 27-41392-803	820410	SAN DIEG O	YES NO	60/C	895823
FAILURE MODE-SHORT (ELECT). DURING TESTS THE STAGING SIGNAL WAS ALWAYS PRESENT. THE FAILURE WAS CONFIRMED AND WAS CAUSED BY A PARTIALLY SHORT-CIRCUITED COLLECTOR TO BASE JUNCTION OF TRANSISTOR Q-9. THE SHORT-CIRCUIT WAS PROBABLY CAUSED DURING TESTING OR TROUBLESHOOTING.							
CORRECTIVE ACTION-BAR WRITTEN REQUESTING TIGHTER ADHERENCE TO APPROVED TESTING AND TROUBLESHOOTING PROCEDURES. ELECTRONICS MANUFACTURING PERSONNEL WERE INSTRUCTED TO SUBMIT FOR REMARK DISPOSITION ALL COMPONENTS INADVERTENTLY DAMAGED IN TEST.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3314F	FAR 27-43901-3	73F 620409	FACTORY	YES NO	60/C	897306
FAILURE MODE-FALL TO OPERATE AT PRESCRIBED TIME. DURING FINAL FACTORY AUTOPILOT CHECKS THE ROLL EXCITATION DID NOT CHANGE FROM HIGH TO LOW. FAILURE ANALYSIS DID NOT CONFIRM THIS FAILURE. MOST LIKELY A TEST EQUIPMENT OR HUMAN ERROR.							
CORRECTIVE ACTION-NONE. PERSONNEL IN FINAL CHECKOUT AREA NOTIFIED OF ANALYSIS RESULTS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	H6-98-04-3144P	FAR 27-41002-897	620403	ETR	NO NO	60/C	894226
FAILURE MODE-OUT OF TOLERANCE. DURING CHECKOUT IN THE CYRO LAB THE PITCH PROGRAM WAS OUT OF TOLERANCE IN THE SLAVIN G MODE. RESULTS WERE 2.5 PERCENT BELOW NOMINAL. THE ALLOWABLE TOLERANCE IS PLUS OR MINUS 2 PERCENT. LOW READING WERE OBTAINED IN ALL CHANNELS, YAW, ROLL AND PITCH. THE ORIGINAL FACTORY CALIBRATION WAS SET CLOSE TO THE EDGE OF ALLOWABLE TOLERANCE. VARIATIONS IN TEST EQUIPMENT AGING AND LINE VOLTAGES COULD CAUSE THE FAILURE.							
CORRECTIVE ACTION- ETR PERSONNEL WERE NOTIFIED OF NECESSITY FOR PROPER WARM-UP TIME AND FOR CLOSE CONTROL OF 115 V 400 CPS INPUT. RELIABILITY REQUESTED A REVIEW OF TEST SET INCOMPATIBILITIES, TEST SET MODIFICATIONS FOR IMPROVED VOLTAGE REGULATION BETTER SURVEILLANCE DURING CALIBRATION, ETC. RESISTANCE CHANGES TO IMPROVE CALIBRATION PER CIC 18839							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3180-F CIRCUIT BOARD-DIODE	FAR 27-41435-3	620404	SAN DIEG O	YES NO	60/C	
FAILURE MODE-OPEN (ELECT) THE P-1 BINARY OF THE SUBJECT PRINTED CIRCUIT BOARD COULD NOT BE RESET BY THE R (124) RESET PULSE. THE FAILURE WAS CONFIRMED. THE FAILURE WAS DUE TO AN OPEN-CIRCUITED 1MST DIODE CR-3. THE CAUSE OF THE DIODE							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
E FAILURE COULD NOT BE DETERMINED AS THE DIODE WAS DESTROYED DURING DEPOTTING OPERATIONS.							095917
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-9N-04-3202-F CIRCUIT BOARD TRANSISTOR	FAR 27-43901-3	620330	BAFB	YES NO		096019
FAILURE MODE-CONTAMINATION. DURING MACHINE CHECKOUT, A NO-60 WAS RECEIVED ON THE ROLL PROGRAM ENABLE. TIME SLOT T004 DROPPED ONLY TO 25 VOLTS INSTEAD OF 16 VOLTS DUE TO A TEMPERATURE SENSITIVE 6-4 TRANSISTOR. A CONTAMINATION OF UNKNOWN ORIGIN WAS FOUND							
CORRECTIVE ACTION-VENDOR HAS CHANGED STYLE OF CONSTRUCTION TO A NEW GEOMETRICAL CONFIGURATION. 60/CONVAIR PURCHASE ORDERS SPECIFY THE NEW TYPE OF CONSTRUCTION.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	3P-98-04-3175-F	FAR 27-41001-973	620327	ETR	YES 60/C NO		091279
FAILURE MODE-PREATURE OPERATION. THE PROGRAMMER WAS OBSERVED TO RESET AFTER 10.6 SECONDS OF OPERATION. THE FAILURE COULD NOT BE DUPLICATED ON THE BOOSTER OR IN THE ETR GYRO LAB. FAILURE ANALYSIS DID NOT CONFIRM THE FAILURE. THE REPORTED FAILURE WAS PROBABLY DUE TO HUMAN ERROR.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-ETR PERSONNEL WERE ADVISED OF THE RESULTS OF THE FAILURE ANALYSIS. THE POSSIBILITY OF HUMAN ERROR WAS CONSIDERED IN BY ETR PERSONNEL THOUGH NO CONCLUSIVE PROOF COULD BE OBTAINED. NO FURTHER CORRECTIVE ACTION TAKEN.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-9N-04-3152-F CIRCUIT BOARD	FAR 27-41440-911	620326	SAN DIES O	NO NO		091319
FAILURE MODE-ERRATIC OPERATION. THE K-2 RELAY ON THE CIRCUIT BOARD REPORTEDLY EXHIBITED ERRATIC OPERATION LEADING TO CONTINUOUS HIGH ROLL GYRO EXCITATION OUTPUT UNTIL RESET. TESTING SHOWED THE CIRCUIT BOARD TO BE GOOD.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	AAS2-0048/PN-4CO-DS-F1 SWITCH-UNLATCH NOSE FAIRING	COMPOSITE-J FACT	104D 36A 820322	NO NO		995944
<p>FAILURE MODE-PREATURE OPERATION. AT INSULATION PANEL JETTISON THE PANEL SQUIBS AND THE NOSE FAIRING SQUIBS FIRED S INSTANTANEOUSLY AT THE JETTISON INSULATION PANEL SIGNAL. THE INSTANTANEOUS FIRING OF THE NOSE FAIRING SQUIBS WAS DUE TO CROSS COUPLING IN THE HARNESS AND/OR THE SQUIB DETONATOR CAUSING THE SILICON CONTROL RECTIFIER DIODE IN THE SQUIB DE TONATOR UNIT SWITCH FOR UNLATCH NOSE FAIRING TO FIRE.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULE.</p> <p>CORRECTIVE ACTION-REDESIGN THE SYSTEM. REPLACE SCR DIODES WITH RELAYS.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3157F TRANSISTOR 2M497	FAR 27-43201-81	820322	FACTORY	YES NO	991313
<p>FAILURE MODE-ELECTRICAL OPEN. THE SUBJECT CIRCUIT BOARD FAILED TO PASS E.O.P. 330.480 IN TOP CANISTER TESTS. THE FA ILURE WAS CONFIRMED. THE STABLE STATE OUTPUT OF THE A MONOSTABLE MULTIVIBRATOR WAS 5 VOLTS ABOVE NORMAL. TRANSISTOR 9C (2M497) WAS PARTIALLY SHORTED, EMITTER TO GROUND. THE FAILURE WAS CAUSED BY ACCIDENTAL SHORTING OF P/N 2D TO GROUND NO.</p> <p>CORRECTIVE ACTION-FACTORY PERSONNEL HAVE BEEN INFORMED OF THE RESULTS OF THIS ANALYSIS. CLOSER CONTROL OVER ASSEMBL Y AND TESTING PROCEDURES WILL BE INSTITUTED.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3158F CIRCUIT BOARD/RELAY	FAR 27-40117-1	820315	FACTORY	YES UNION SWITCH A NO NO SIGNAL CO	991314
<p>FAILURE MODE-ELECTRICAL OPEN. THE R-1 SAFE 28 VOLT RELAY ON THE CIRCUIT BOARD WOULD STICK OPEN CIRCUITED WHEN WARM. THE REPORTED FAILURE WAS CONFIRMED AND FOUND TO BE DUE TO EXCESSIVE AXIAL MOVEMENT OF THE ROTOR OF THE R-1 RELAY. T HE CAUSE IS BELIEVED TO BE DUE TO POOR ASSEMBLY AND INSPECTION TECHNIQUES OF THE VENDOR.</p> <p>CORRECTIVE ACTION-NONE.</p>						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3203-F CIRCUIT BOARD TRANSISTOR	FAR 27-41449-5	820314	FACTORY	YES NO	
<p>FAILURE MODE-OUT OF TOLERANCE. DURING MANUFACTURING TESTING THE ZERO SIDE OF THE 32 SECOND BINARY (1110) WAS HIGH AT RESET. (40V SHOULD BE 16V). CAUSE WAS A SHORT CIRCUITED 64 TRANSISTOR THAT WAS PROBABLY OVERLOADED DURING TESTING O R TROUBLE SHOOTING.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	LITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-FACTORY PERSONNEL WERE CAUTIONED TO STRICTLY OBSERVE APPROVED TESTING AND TROUBLE SHOOTING.							996414
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3186F	PAR 27-41440-911	620312	FACTORY	YES	60/C NO	997991
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. ROLL GYRO EXCITATION WOULD NOT OCCUR. ANALYSIS DID NOT CONFIRM V FAILURE.							
CORRECTIVE ACTION-60/C PERSONNEL WERE NOTIFIED TO USE CORRECT PROCEDURE.							995932
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3284-F TRANSISTOR	PAR 27-41833-3	620308	FACTORY	YES	60/C NO	
FAILURE MODE-ERRATIC OPERATION-SWITCH 18 FIRED INTERMITTENTLY AFTER WARM UP AND DURING PERFORMANCE OF EOP 330.459 V FAILURE WAS CAUSED BY TEMPERATURE SENSITIVITY OF TRANSISTOR 62. TRANSISTOR WAS WESTRAM EN232.							
CORRECTIVE ACTION-WESTRAM REMOVED FROM APPROVED VENDOR LIST FOR EN1232.							997766
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3127-F CIRCUIT BOARD TRANSISTOR	PAR 27-41838-3	620307	FACTORY	YES	WESTRAM NO	
FAILURE MODE-FAILED DURING OPERATION. SWITCH 3 HAD INCORRECT OUTPUT VOLTAGE. FAILURE WAS ATTRIBUTED TO TRANSISTOR 6 -3 (EN1232) MANUFACTURED BY WESTRAM. OUTPUT OF SWITCH 3 WOULD NOT GO ABOVE GROUND LEVEL. THE EMITTER TO COLLECTOR JUNC TION PRACTICALLY BECAME A SHORT CIRCUIT WHEN THE TRANSISTOR WAS HEATED.							
CORRECTIVE ACTION-VENDOR WAS NOTIFIED. FUTURE TRANSISTORS OF THIS TYPE WILL BE PROCURED FROM HUGHES.							997740
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3122F CIRCUIT BOARD SWITCH	PAR 27-41839-5	620227	FACTORY	NO	60/C NO	
FAILURE MODE-PREATURE OPERATION. SWITCH 17 FIRED PREMATURELY IN TOP PACKAGE TEST. NO MALFUNCTION OF SWITCH 17 CIRC UITRY WAS FOUND. FAILURE WAS ATTRIBUTED TO TEST SET MALFUNCTION OR HUMAN ERROR.							
CORRECTIVE ACTION-NONE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	M6-88-04-3081-F SWITCH	FAR 27-41001-887	108D 620213	ETR	NO NO		894740
FAILURE MODE-OUT OF TOLERANCE. ROLL GYRO EXCITATION VOLTAGE OUT OF TOLERANCE AT 95.29 VOLTS. SPECIFIED VALUE FOR SW ITCH 11 HI .15 94.6 PLUS/MINUS 0.6 VOLTS. FAILURE NOT VERIFIED IN PROGRAMMER. DISCREPANCY CONCLUDED TO BE IN SITE GYR O LAB TEST SET.							
CORRECTIVE ACTION-NEW PROGRAMMER CHECKOUT UNIT INSTALLED AND VALIDATED AT ETR.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3124F TRANSISTOR	FAR 27-41308-3	620203	FACTORY	YES NO	WESTRAN	897741
FAILURE MODE-FAILED DURING OPERATION-SWITCH 2 OF LOWER POWER SWITCH CIRCUIT BOARD FAILED DURING A PACKAGE LEVEL VIB RATION TEST-FAILURE WAS ATTRIBUTED TO A TRANSISTOR 8-10 (UW132) MANUFACTURED BY WESTRAN TRANSISTOR COMPANY.							
CORRECTIVE ACTION-VENDOR WAS NOTIFIED. FUTURE TRANSISTORS OF THIS TYPE WILL BE PROCURED FROM HUGHES.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3086-F DIODE	FAR 27-43201-818	620131	FACTORY	YES NO		894744
FAILURE MODE-PREATURE OPERATION-PROGRAMMER RESET AT 19 SECONDS (SHOULD NOT HAVE RESET). EXTENSIVE TESTS FAILED TO CONFIRM FAILURE BUT DIODE CR101 ON SWITCH 11 HAD A LOOSE LEAD AND CAPACITOR C1 WAS NOT RESTRAINED BY CONFORMAL COATI NG AND HAD A DAMAGED LEAD.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3120-F SWITCH	FAR 27-41443-803	420126	FACTORY	NO NO		897743
FAILURE MODE-FAILED DURING OPERATION. SWITCH 8 ACTUATED WHEN LAUNCH BUTTON WAS RELEASED ON PACKAGE LEVEL TEST SET.							
CORRECTIVE ACTION-60/C PERSONNEL WERE ADVISED TO USE CORRECT PROCEDURES.							

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DIFFICULTIES REVIEW-AUT/PILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUT/PILOT-SQUARE-A/B PROGRAMMER	A-99-04-3118-F CIRCUIT BOARD SWITCH	FAR 27-41558-3	620126	FACTORY	NO		697737
FAILURE MODE-FAILED DURING OPERATION. CIRCUIT BOARD SWITCH 4 ACTUATED WHEN LAUNCH BUTTON ON PACKAGE LEVEL TEST SET WAS RELEASED.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. GO/C PERSONNEL ADVISED TO USE PROPER TEST EQUIPMENT.							
AUT/PILOT-SQUARE-A/B PROGRAMMER	CT-99-04-0181 LOGIC & CIRCUIT BOARD	FAR 55-41038-3	620123	FACTORY	YES GO/C NO		692983
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED WHEN THE LOWER EDGE OF THE MONO SQUARE WAVE WAS MEASURED AT 10 V. DC- MAX. ALLOWABLE IS 12 V.DC.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUT/PILOT-SQUARE-A/B PROGRAMMER	A-99-04-3090-J CIRCUIT BOARD DIODE	FAR 27-41442-3	620119	FACTORY	YES GO/C NO		694741
FAILURE MODE-ERRATIC OPERATION-SWITCH 10. 2 WAS INTERMITTENT. TESTING CONFIRMED FAILURE AND REVEALED A COLD SOLDER JOINT FROM THE ANODE SIDE OF DIODE CP8 TO THE BOARD EYELET.							
CORRECTIVE ACTION-FACTORY MANUFACTURING AND INSPECTION PROCEDURES REVISED TO IMPROVE SOLDERING TECHNIQUES.							
AUT/PILOT-SQUARE-A/B PROGRAMMER	HG-99-04-3104F DIODE	FAR 27-41001-867	620115	ETR	YES GO/C NO		696396
FAILURE MODE-SHORT (LEEC) INTERMITTENT-SUSPECT COLD SOLDER JOINT.							
CORRECTIVE ACTION-GO/C QUALITY CONTROL ADVISED BY FAR A-99-04-89 AS A RESULT OF FAR A-99-04-3080P AND COLD SOLDER P ROBLEM.							
AUT/PILOT-SQUARE-A/B PROGRAMMER	CT-99-04-007F SWITCH	FAR 59-41001-819	620113	AMR	YES GO/C NO		
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. UNIT REJECTED FOR SWITCH 22 BEING ON, PINS J3-P AND J3-D 2 SHORTED TO GROUND, AND PINS J2-M AND J2-PF BURNED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PSI OTH	VENDOR NAME VENDOR PART NO	
							891376
	CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3108F SWITCH	FAR 27-45201-015	ZIF 020110	FACTORY	YES NO		898684
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. SWITCH NO. 9 FAILED TO OPERATE DURING TESTING.						
	CORRECTIVE ACTION-NONE-FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	ARI41-0-3-21/FC-6CO-03-021 SWITCH-LOW POWER ELECTRONIC	COMPOSITE-FACTORY 27-45201-015, TEST 2001	ZIF 020109	FACTORY	YES NO		898090
	FAILURE MODE-PREATURE OPERATION-GUIDANCE ROLL TORQUING ENDED AT 15 SECONDS. EXPECTED DDO TIME IS 19 SECONDS. INVE- STIGATION REVEALED LOW POWER SWITCH NO. 9 HAD FAILED.						
	SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. ROLL TORQUING ENDED 4 SECONDS EARLY.						
	VEHICLE EFFECT-COMPOSITE RESCHEDULED-COMPOSITE MEAN TO DEMONSTRATE PROPER SYSTEM OPERATION.						
	CORRECTIVE ACTION-THE PROGRAMMER WAS REJECTED (18791370) AND REPLACED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3084-F CIRCUIT BOARD	FAR 27-41443-003	020105	FACTORY	YES NO		894748
	FAILURE MODE-ERRATIC OPERATION-VIBRATION SENSITIVE BOARD FAILED DURING PROGRAMMER TEST. FAILURE WAS NOT CONFIRMED. PROBABLE CAUSE OF FAILURE WAS INSTRUMENTATION MALFUNCTION.						
	CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3112F CIRCUIT BOARD-SWITCH	FAR 27-41443-003	020101	FACTORY	YES NO		898571
	FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME SWITCH NO. 10 FAILED TO OPERATE DURING TESTING.						
	CORRECTIVE ACTION-NOT CONFIRMED. POSSIBLE HUMAN OR TEST SET ERROR.						

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SUSTAINER SYSTEM

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VEHICLE NAME PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	ARI41-0-3-21/FC-8CO-02-021 CLOCK-PROGRAMMER DIGITAL COUNTER	COMPOSITE-FACTORY 21F 27-49201-915, TEST 2001	811229		YES NO	893008
FAILURE MODE-PREATURE OPERATION-NUMEROUS SWITCHING FUNCTIONS WERE EARLY. POST COMPOSITE TESTING SHOWED AN UNSTABLE PROGRAMMER BINARY GENERATOR.						
SYSTEM EFFECT-OPERATION TOO HIGH-THE PROGRAMMER DIGITAL CLOCK COUNTER WAS OPERATING AT A SPEED 20 PERCENT GREATER THAN EXPECTED.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED-COMPOSITE REARM.						
CORRECTIVE ACTION-PROGRAMMER IN/D AND REPLACED (PTR 9768).						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A891-1275/LF-401-00-114 PROGRAMMER HIGH POWER SWITCH 20	FLIGHT 114D 27-41001-961	811222	1-2 203	YES YES	894023
FAILURE MODE-OPEN/ELECTRIC). PROGRAMMER HIGH POWER SWITCH 20 DID NOT PROVIDE AN OUTPUT IN RESPONSE TO GUIDANCE DECODE DER SECO COMMAND, OR TO THE PROPELLANT DEPLETION BACK-UP SIGNAL.						
SYSTEM EFFECT-OPERATION DOES NOT START. ALL OTHER PROGRAMMER FUNCTIONS WERE NOMINALLY ACCOMPLISHED.						
VEHICLE EFFECT-LATE SUSTAINER ENGINE SHUTDOWN. SUSTAINER ENGINE CONTINUED TO OPERATE UNTIL LOX DEPLETION. AS A RESULT, THE SATELLITE WAS INSERTED INTO A HIGHER THAN PLANNED ORBIT. ALSO, AGENA PREMAJURE SEPARATION DESTRUCT DISABLING (NOMINALLY ACCOMPLISHED BY A/P SECO OUTPUT), WAS ACCOMPLISHED BY BACK-UP AT VECO.						
CORRECTIVE ACTION-SUBSEQUENT VEHICLES REVISED WITH AN INDEPENDENT PATH FOR PROPELLANT DEPLETION CUTOFF TO ENGINE RELAY BOX IN THE EVENT OF PROGRAMMER DISCONTINUITY.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3039-F SWITCH	FAR 27-41001-963	38C 811219	ETR	YES NO	893883
FAILURE MODE-ERRATIC OPERATION-INTERMITTENT OUTPUT VOLTAGE FROM SWITCH 16. CAUSE OF FAILURE NOT ISOLATED.						
CORRECTIVE ACTION-UNKNOWN. CAUSE OF FAILURE NOT DETERMINED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3039-F SWITCH	FAR 27-41001-963	811219	ETR	YES NO	893887
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-DURING EVALUATION IN SYRO LAB AT ETR THE PROGRAMMER EXHIBITED ERRAT IF RESET AND SWITCH ACTUATION TIMES. FAILURE COULD NOT BE CONFIRMED AT SD.						
CORRECTIVE ACTION-UNKNOWN. ETR ADVISED FAILURE PROBABLY DUE TO HUMAN AND/OR TEST ERROR.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME	SITE TIME OF DAY	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	AE81-0884/P2-404-00-117 STAGING BACKUP ACCELERATION SWITCH	FLIGHT	1170 011110	12 135.5	YES NO		093329
<p>FAILURE MODE-PREATURE OPERATION. THE STAGING BACKUP ACCELERATION SWITCH WAS MOUNTED ON THE SKIN OF THE LOB TANK AND OPERATED AT 0.2 G INSTEAD OF 0.77 G DUE TO THE EXTREME COLD ENVIRONMENT.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. THE PROGRAMMER RECEIVED A STAGING BACK-UP SIGNAL 0.4 SECONDS BEFORE THE GUIDANCE SYSTEM COMPUTER GENERATED THE PROPER STAGING DISCRETE DUE TO THE PREMATURE BACK-UP SWITCH OPERATION.</p> <p>VEHICLE EFFECT-PREATURE BOOSTER CUTOFF. THE PROGRAMMER DELIVERED THE STAGING DISCRETE 0.4 SECONDS TOO EARLY CAUSING THE BOOSTER TO CUTOFF BEFORE THE VEHICLE HAD REACHED THE PROPER VELOCITY. THE MISSION WAS SUCCESSFUL BECAUSE THE SUSTAINER CUT-OFF SIGNAL WAS NOT SENT BY THE GUIDANCE COMPUTER UNTIL PLANNED VELOCITY WAS ACHIEVED.</p> <p>CORRECTIVE ACTION-ACCELERATION SWITCH WAS RELOCATED ON THE SKIN OF THE FUEL TANK IN A MORE COMPATIBLE ENVIRONMENT.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3074-F SWITCH-RECTIFIER	FAR 27-41001-933	47 011115	ETR	YES NO		094217
<p>FAILURE MODE-ERRATIC OPERATION-SWITCH 17 HAD INTERMITTENT OUTPUT AND PROGRAMMER RESET AT RANDOM TIMES. SWITCH 17 FAILURE WAS DUE TO A FAULTY SILICON CONTROLLED RECTIFIER. RESET PROBLEM WAS DETERMINED TO BE A RESULT OF NO LOAD ACROSS THE SWITCH.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AR141-0-3-14/PC-8CO-04-014	COMPOSITE-FACTORY	14F 011114	FACTORY	YES NO		099049
<p>FAILURE MODE-FAIL DURING OPERATION-ROLL TORQUIN; STOPPED AT 15 SECONDS WHEN DEACTIVATION IS EXPECTED AT 17 SECONDS. THIS OCCURRED ON NSL 87 WITH THE SAME PROGRAMMER INSTALLED. PROGRAMMER WAS REMOVED AND REINSTALLED. SUBSEQUENT TESTING SATISFACTORY.</p> <p>SYSTEM EFFECT-OPERATION STOPS PREMATURELY-PROGRAMMER STOPPED ROLL PROGRAM 2 SECONDS TOO SOON.</p> <p>VEHICLE EFFECT-COMPOSITE REACHED. RERUN OF COMPOSITE MADE AFTER REPAIR OF PROGRAMMER.</p> <p>CORRECTIVE ACTION-PROGRAMMER REMOVED.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AA81-0189/P1-8CO-01-04 CIRCUIT BOARD	COMPOSITE-J FACT	47 011113	15	YES NO		
<p>FAILURE MODE-ERRATIC OPERATION-SWITCH 17 OF THE A/P PROGRAMMER HAD AN OUTPUT WHICH RESEMBLED THE TIMING PULSE WHICH INDICATED THAT PLUS 20 VOLT POWER WAS ABSENT FROM THE CONTROL DIODE.</p>							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-SWITCH 17 OF THE AP PROGRAMMER HAD AN OUTPUT WHICH RESEMBLED THE TIMING PULSE							090231
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-THE PROGRAMMER WAS REPLACED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	ARI41-0-3-14/PC-6CO-02-014	COMPOSITE-FACTORY 27-45201-819, TEST 2001	14P 81103	FACTORY	YES	60/C NO	090078
FAILURE MODE-PREATURE OPERATION-THE PROGRAMMER RESET AND TANK FRAGMENTATION FUNCTIONS OCCURRED EARLY.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED, COMPOSITE RE-RUN.							
CORRECTIVE ACTION-PROGRAMMER REPLACED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-98-04-3078-F CIRCUIT BOARD	FAR 27-41594-803	81102	FACTORY	YES	60/C NO	094809
FAILURE MODE-ERRATIC OPERATION, A MONOSTABLE MULTIVIBRATOR WAS VIBRATION SENSITIVE. EXTENSIVE TESTING DID NOT ISOLATE CAUSE OF FAILURE-SECOND EMITTER FOLLOWER OF THE MONOSTABLE DEVELOPED AN EMITTER TO COLLECTOR SHORT DURING TESTING							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	HC-A9-04-3033 SWITCH	FAR 27-41001-931	1090 81127	FACTORY	YES NO		094104
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-SWITCH 26 FAILED TO CHANGE THE FILTER RESPONSE UPON COMMAND. FAILURE WAS NOT VERIFIED AND CAUSE OF FAILURE WAS NOT ISOLATED AT 80.							
CORRECTIVE ACTION-UNKNOWN, PERSONNEL IN FINAL CHECKOUT AREA ADVISED TO EXERCISE CARE IN SELECTING THE PROPER CHECKOUT PROCEDURE FOR EACH RESPECTIVE PROGRAMMER.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0784/L2-408-00-108 SWITCH	FLIGHT 27-04089-1	1050 811021	1-2 136	YES NO		
FAILURE MODE-PREATURE OPERATION, THE STAGING BACKUP ACCELERATION SWITCH ACTIVATED PREMATURELY BECAUSE OF THE LOW TEMPERATURE ENVIRONMENT CAUSED BY ITS PROXIMITY TO THE LOX TANK.							

GENERAL DYNAMICS
MOBILE DIVISION

DIFFICULTIES REVIEW-AUTOPLOIT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE D/F	SITE TIME D/F	PRI OTH	VENDOR NAME VENDOR PART NO
020130	SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. THE PROGRAMMER STAGING SUBROUTINE WAS INITIATED PREMATURELY BECAUSE OF THE EARLY SWITCH ACTIVATION.					
VEHICLE EFFECT-PREATURE BOOSTER ENGINE CUTOFF. THE STAGING SUBROUTINE WAS INITIATED 0.936 SECONDS BEFORE THE BURRO UMS COMPUTER STAGING DISCRETE WAS GENERATED.						
CORRECTIVE ACTION-THE ACCELERATION SWITCH WAS RELOCATED ON A FUEL TANK MOUNT AT STATION 1094.918 FOR ETR VEHICLES A NO STATION 1032.996 FOR MTR VEHICLES.						
000920	AUTOPLOT-SQUARE-A/B PROGRAMMER	A481-0152/P2-401-00117	COUNTDOWN 117D 611019	12 -3060	NO NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. SEPARATION DISCRETE NOT RECEIVED BY AUTOPILOT PROGRAMMER.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED. 60 MINUTE HOLD WAS INSUFFICIENT TIME TO CORRECT PROBLEM TO MEET L LAUNCH WINDOW.						
CORRECTIVE ACTION-NONE.						
090931	AUTOPLOT-SQUARE-A/B PROGRAMMER	SP 9D-04-3017F SWITCH PROGRAMMER AUTOPILOT PROGRAMMER CANISTER	PAR 27-41001-933	110D 61101R	YES NO	60/C
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. VERNIER BIAS ACTIVATION SWITCH ACTIVATED AT STAGING INSTEAD OF 6.5 SECONDS AFTER STAGING.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION BECAUSE A MALFUNCTION COULD NOT BE FOUND IN THE ITEM. ASSUME MAPCHE ERROR IN DICATION.						
090430	AUTOPLOT-SQUARE-A/B PROGRAMMER	A681-1023/FC-8CO-02-036	COMPOSITE-FACTORY 36P 611013	FACTORY NO	NO	60/C
FAILURE MODE-OUT OF TOLERANCE-ALL STRO AND SERVO INPUT COMMANDS WERE POSITIVE DUE TO FAULTY AGE TEST PROGRAMMER TAP ES.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
CORRECTIVE ACTION-FAULTY AGE TEST PROGRAMMER TAPES REPLACED.						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-98-04-3083-F SWITCH	FAR 27-41001-931	611006	ETR	NO NO		094912
FAILURE MODE-ERRATIC OPERATION-UNIT RESET ERRATICALLY-FAILURE NOT CONFIRMED-CAUSE OF FAILURE DUE TO FRAYED WIRE IN GSE.							
CORRECTIVE ACTION-GSE REPAIRED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-90-04-298-F SWITCH	FAR 27-43901-1	24E 611004	WTR	NO NO	60/C	095908
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. THE PROGRAMMER WAS REPORTEDLY GENERATING A CONTINUOUS VERNIER ENGINE CUTOFF (VECO) SIGNAL AT ZERO TIME. THIS SIGNAL CAUSED THE ANTI-FIRE SYSTEM TO OPERATE. FAILURE COULD NOT BE CONFIRMED. IT IS CONCLUDED THAT THE FAILURE AS REPORTED WAS EXTERNALLY INDUCED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION CAN BE TAKEN AS THE REPORTED FAILURE WAS NOT CONFIRMED. THE PROGRAMMER DEVELOPMENT GROUP IS INVESTIGATING THE RELIABILITY AND PACKAGING PROBLEMS OF RELAY K1.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	SP-98-04-291-F SWITCH 26 WIRING	FAR 27-41001-937	1170 610927	ETR	YES NO		094312
FAILURE MODE-OUT OF TOLERANCE. DURING THE PERFORMANCE OF PROCEDURE 27-90338-BKE, SWITCH 26 PRODUCE THE WRONG OUTPUT VOLTAGE. THE VOLTAGE SHOULD HAVE BEEN (-) 8 VOLTS BUT IT WAS (PLUS) 12 VOLTS. ANALYSIS REVEALED THAT A JUMPER WIRE IN CIRCUIT BOARD ASAE, P/N 27-41622-807 WAS MISWIRED TO SWITCH 26 BINARY.							
CORRECTIVE ACTION-RAR 98-04-872 WAS INITIATED AND DIRECTED TO QUALITY CONTROL INSPECTION GROUP. CORRECTIVE ACTION 7 IS TAKEN BY INSPECTION SUPERVISION HOLDING WEEKLY MEETINGS WITH FACTORY INSPECTORS TO DISCUSS PROBLEM AREAS. INDIVIDUAL CORRECTIVE ACTION IS TAKEN BY ISSUING AWO 8 TO INSPECTORS WHO ARE FOUND TO BE MAKING REPETITIVE MISTAKES.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-90-04-298-F	FAR 27-43901-3	610926	WTR	YES NO		095907
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME-THE SUBJECT PROGRAMMER WOULD NOT START OR INDICATE ZERO TIME. FAILURE ANALYSIS COULD NOT CONFIRM THE FAILURE. AN OPEN CURRENT LIMITER SWITCH 16 WAS FOUND DURING THE FAILURE ANALYSIS BUT IT COULD NOT HAVE CONTRIBUTED TO THE REPORTED FAILURE.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION BECAUSE THE FAILURE WAS NOT CONFIRMED.							

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	AE61-0933/PC-8CO-01-022 FAILURE MODE-ERRATIC OPERATION. PITCH PROGRAM DATA INDICATED EXTRANEOUS DEVIATIONS DURING THE TEST DUE TO A FAULTY RELAY IN THE FLIGHT CONTROL CHECKOUT PANEL. SYSTEM EFFECT-ERRATIC OPERATION. VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TEST REQUIRED TO VERIFY SATISFACTORY RESOLUTION OF PROBLEM. CORRECTIVE ACTION-REPLACED FAULTY RELAY IN AGE.	COMPOSITE-FACTORY 810919	22F 810919	FACTORY	NO	NO 50/C	898203
AUTOPILOT-SQUARE-A/B PROGRAMMER	AE61-0918/PC-4CO-02-137 FAILURE MODE-OUT OF TOLERANCE. PITCH PROGRAM VOLTAGES WERE OUT OF TOLERANCE DURING THE COMPOSITE TEST. THE SBE PITC H BUCKOUT AMPLIFIER WAS NOT SETUP PRIOR TO COMPOSITE TEST START. SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED. CORRECTIVE ACTION-SET UP SBE PITCH BUCKOUT AMPLIFIER PROPERLY.	COMPOSITE-FACTORY 810901	137D 810901	FACTORY	NO	NO 50/C	893124
AUTOPILOT-SQUARE-A/B PROGRAMMER	AC-81-0090/81-804-A4-01 FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-THE EJECT RE-ENTRY VEHICLE DISCRETE SIGNAL WAS NOT RECEIVED BECAUSE THE FLIGHT PROGRAMMER RESET TO ZERO TIME WHEN MISSILE ELECTRIC POWER WAS SWITCHED TO EXTERNAL AT WCO PLUS 1.72 SECO NDS. THE SIGNAL SHOULD HAVE OCCURRED AT WCO PLUS 3.0 SECONDS AS EVIDENCE OF VERNIER CUTOFF SUB-ROUTINE OPERATION. SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS-LACK OF VALIDATION OF PROGRAMMER GENERATION OF EJECT RE-ENTRY VEHICLE DISCR ETE. VEHICLE EFFECT-NONE. CORRECTIVE ACTION-UNKNOWN.	CAPTIVE	1F 810901	SYC 82.8	NO	NO	894837
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-88-04-261-F FAILURE MODE-OUT OF TOLERANCE. DURING CHECKOUT OF THE PROGRAMMER THE ROLL SET MOTOR WOULD NOT ADJUST THE ROLL SET T RANSDUCER TO AN OUTPUT OF MORE THAN 0.4 V. FAILURE ANALYSIS DID NOT CONFIRM THE FAILURE. THE CONCLUSION WAS MADE THA T THE LOW VOLTAGE READING AT THE SITE WAS DUE TO AN OUT OF CALIBRATION VOLTMETER AS SIMILAR RESULTS WERE OBTAINED IN THE LABORATORY UNDER THIS CONDITION. CORRECTIVE ACTION-NONE. ETR PERSONNEL HAVE BEEN INFORMED OF THE RESULTS OF THIS ANALYSIS.	FAR 27-41001-933	810900	ETR	NO	NO 50/C	893778

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	AES1-0881/PC-8CO-01-081	COMPOSITE-FACTORY	81E 810812	FACTORY	NO	60/C NO	88410
<p>FAILURE MODE-ERRATIC OPERATION-THE FLIGHT PROGRAMMER START SIGNAL APPEARED TO DEACTIVATE AT TWO INTERVALS DURING IT & EXPECTED ACTIVATION. A FAULTY RELAY IN THE CONTROL ASSEMBLY WAS REPLACED.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION-PROGRAMMER START SIGNAL APPEARED TO BE ERRATIC-RELAY IN CASE WAS FOUND TO BE FAULTY.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST- COMPOSITE TESTING REQUIRED TO ISOLATE THE SOURCE OF TROUBLE.</p> <p>CORRECTIVE ACTION-FAULTY RELAY REPLACED.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AAS1-0111/P6-4CHO-03-104/C-2	COMPOSITE-FRO/DPL	104D 810810	36A	NO NO		884788
<p>FAILURE MODE-PREATURE OPERATION. DURING THE STAGING DISCRETE LOCKOUT TEST OF THE FIRST GAP TEST THE DISCRETE INPUT TO THE ATLAS PROGRAMMER REMAINED PRESENT CAUSING STAGING AT ENABLE TIME. THE GROUND MONITORING EQUIPMENT PROVIDED A SUFFICIENT LOAD TO CAUSE THE CENTAUR PROGRAMMER SWITCH SCR TO ACTIVATE.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. THE STAGING DISCRETE LOCKOUT REMAINED PRESENT AT THE ATLAS PROGRAMMER INPUT CAUSING STAGING AT ENABLE TIME.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. CONTRIBUTING FACTOR TO 30 MINUTE HOLD AT T-130.</p> <p>CORRECTIVE ACTION-ISOLATION CIRCUIT INSTALLED AFTER TEST.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-JA-04-3478-F CIRCUIT BOARD	FAR 27-41408-801	810809	FACTORY	YES NO	60/C NO	884193
<p>FAILURE MODE-OUT OF SPECIFICATION. THE PITCH-3 AND 4 ASSEMBLY BOARD WAS IR/D WHEN THE PITCH OUTPUT VOLTAGE STEPPED FROM 1.4 TO 2.8 VOLTS. FAILURE ANALYSIS COULD NOT CONFIRM THIS FAILURE. ALL ELECTRICAL TESTS WERE WITHIN TOLERANCE.</p> <p>CORRECTIVE ACTION-NONE-FAILURE OCCURED TOO LONG AGO TO TAKE ACTION. (UNIT RCVD FOR FAILURE ANALYSIS 29 OCT 1962).</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AB-04-255	FAR 27-41439-3	810805	FACTORY	NO NO	60/C NO	
<p>FAILURE MODE-OUT OF TOLERANCE. THE FAILURE WAS INDICATED BY A PITCH PROGRAM VOLTAGE OUT OF TOLERANCE ON THE AUTOMAT IC CHECKOUT TEST SET DURING VIBRATION TESTING. FAILURE ANALYSIS CONCLUDED THAT THERE WAS NO FAILURE IN THE ASSEMBLY AND THAT THE PROBLEM WAS IN THE TEST SET.</p>							

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GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-THE DESIGN GROUP IS STUDYING THE FACTORY TEST EQUIPMENT IN AN EFFORT TO CORRECT THE DIFFICULTIES ENCOUNTERED. OPERATORS OF THE TEST SET HAVE BEEN INFORMED AND WILL MONITOR FAILURES OF THIS TYPE IN THE FUTURE.						892154
AUTOPLOT-SQUARE-A/B PROGRAMMER	HG-98-04-277F CIRCUIT BOARD ABAL/DIODE-1M37	FAR 27-41442-1	880 610800	14	YES SILICON TRANS NO STOR COMP.		894519
	FAILURE MODE-STRUCTURAL. SWITCH 3 MALFUNCTIONED DURING VIBRATION PER EOP 330.289.2. ANALYSIS REVEALED THAT DIODE CR 3 (1M37) IN THE SWITCH 3 BINARY ASSEMBLY (CIRCUIT BOARD ABAL) OF THE PROGRAMMER FAILED DURING VIBRATION DUE TO SUB-QUALITY SOLDERING.						
	CORRECTIVE ACTION-DIODES, TYPE 1M37, MANUFACTURED BY SILICON TRANSISTOR CORPORATION ARE NO LONGER IN USE IN THE FACTORY.						899097
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0748/PC-8CD-01-013	COMPOSITE-FACTORY	13F 610725	FACTORY	NO NO		
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- THE FLIGHT PROGRAMMER SUBROUTINE 3 FUNCTIONS COULD NOT BE EVALUATED BECAUSE RECORDER NO 2 STOPPED AT 286 SECONDS OF THE TEST.						
	SYSTEM EFFECT-OPERATION DOES NOT START. RECORDER STOPPED PRIOR TO START OF SUBROUTINE 3 START NO START COULD NOT BE EVALUATED.						
	VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED- POST COMPOSITE TEST REQUIRED TO DEMONSTRATE SATISFACTORY OPERATION.						
	CORRECTIVE ACTION-NOT KNOWN.						893782
AUTOPLOT-SQUARE-A/B PROGRAMMER	9K-04-243	FAR 27-43901-1	14E 610724	FAIRCHILD	YES NO		
	FAILURE MODE-FAILED DURING OPERATION. THE OPERATOR WAS UNABLE TO GET A ZERO TIME INDICATION ON THE CONTROL PANEL. THE FAILURE WAS NOT CONFIRMED. ON COMPLETION OF FAILURE ANALYSIS, THE CONCLUSION WAS MADE THAT THE MOST PROBABLE CAUSE FOR THE FAILURE WAS DUE TO A MALFUNCTION IN GROUND SUPPORT EQUIPMENT.						
	CORRECTIVE ACTION-NONE. RELIABILITY IS MONITORING FAILURES OF THIS TYPE FROM ALL BASES TO DETERMINE WHERE MALFUNCTIONS ACTUALLY OCCUR.						
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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	AC61-0832/PC-8CO-08-008	COMPOSITE-FACTORY	8F 810714	FACTORY	NO	60/C	893391
<p>FAILURE MODE-OUT OF TOLERANCE. ROLL SERVO BIAS STEP FUNCTIONS WERE GREATER THAN EXPECTED AT TWO INTERVALS DURING THE TEST. THE INPUT SIGNAL WAS ERRONEOUS DUE TO A FAULTY ROLL BUCKOUT AMPLIFIER IN THE AGE.</p> <p>SYSTEM EFFECT-OPERATION TOO HIGH. IMPROPER INPUT SIGNALS CAUSED THE ROLL SERVO BIAS TO BE TOO HIGH.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. A POST-COMPOSITE TEST WAS REQUIRED TO DEMONSTRATE PROPER SYSTEM OPERATION.</p> <p>CORRECTIVE ACTION-FAULTY BUCKOUT AMPLIFIER IN AGE REPLACED.</p>							
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-236 CIRCUIT BOARD/ABAR BOARD	FAR 27-41001-931	28E 810710	ETR	NO	60/C	893780
<p>FAILURE MODE-ELECTRICAL OPEN. THE BOOSTER ENGINE CUT-OFF (BECO) SWITCH 12 FAILED TO FUNCTION DURING THE PROGRAMMER EVALUATION PROCEDURE. MICROSCOPIC INSPECTION REVEALED THAT, IN THE HIGH POWER ASSEMBLY (ABAR BOARD), RESISTOR R38 AND THE BRIDGE WIRE WERE BURNED ON ONE END CAUSING THE BRIDGEWIRE TO OPEN. THE OPEN BRIDGEWIRE WAS APPARENTLY CAUSED BY A SHORT DURATION HEAVY OVERLOAD FROM AN EXTERNAL 28 VDC SOURCE.</p> <p>CORRECTIVE ACTION-NO CORRECTIVE ACTION, HOWEVER SURVEILLANCE WILL BE MAINTAINED ON THE PERFORMANCE OF THIS AND LIKE COMPONENTS BOTH IN MANUFACTURING AND IN THE FIELD.</p>							
AUTOPLOT-SQUARE-A/B PROGRAMMER	95-04-268 CIRCUITBOARD/DIODE-1H547	FAR 27-41001-925	108D 810705	VAFB	YES NO		894322
<p>FAILURE MODE-STRUCTURAL. THE ITEM PROGRAMMER SENT A CONSTANT VERNIER AND SUSTAINER CUTOFF SIGNAL AND WOULD NOT RESET. THE PROGRAMMER CYCLED CONTINUOUSLY. FAILURE ANALYSIS REVEALED THAT THE CR-1 DIODE ON THE ATAI CIRCUIT BOARD CAUSED THE FAILURE. THE CR-1 DIODE HAD BEEN BROKEN PRIOR TO THE FAILURE. OTHER FAULTY COMPONENTS IDENTIFIED DURING FAILURE ANALYSIS WERE PROBABLY CAUSED BY HUMAN ERROR IN SUBSEQUENT TROUBLE SHOOTING.</p> <p>CORRECTIVE ACTION-PERSONNEL AT ALL BASES ARE CAUTIONED AGAINST USE OF TROUBLESHOOTING PROCEDURES WHICH MAY DAMAGE THE EQUIPMENT OR OBSCURE ORIGINAL FAILURE. RELIABILITY WILL MONITOR THIS TYPE OF FAILURE TO DETERMINE IF ACTION IS REQUIRED.</p>							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AS-04-244	FAR 27-43201-810	33E, 37E, FACTORY 8F 810828	FACTORY	NO	60/C	
<p>FAILURE MODE-FAILED DURING OPERATION. AFTER RUNNING FOR APPROXIMATELY 20 SECONDS, THE PROGRAMMER WOULD RESET IN THE ARM POSITION. FAILURE OF THE CANISTER WAS NOT CONFIRMED. IT WAS CONCLUDED THAT A HUMAN ERROR IN THE USE OF FACTORY TEST EQUIPMENT WAS THE CAUSE OF INCORRECT PROGRAMMER READOUT.</p>							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-FACTORY PERSONNEL WERE ADVISED TO EXERCISE MORE CARE IN FOLLOWING THE PROPER PROCEDURES DURING PROGRAMMER CHECKOUT.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-223 TRANSISTOR	FAR 27-41001-929	22E 610821	13	YES NO	HUGHES AIRCRAFT MO T
FAILURE MODE-ERRATIC OPERATION-TRANSISTOR 94 (NAT7334) IN THE HIGH POWER 4 ASSEMBLY INDICATED A PARTIAL BREAKDOWN. THE ELECTRICAL CHARACTERISTICS WERE ERRATIC WHEN TESTED. THE CRYSTAL WAS LOOSE ON ITS MOUNT AND FRACTURED. THIS WAS CAUSED BY A LOOSE BASE LEAD PULLED OUT 1/32 INCH IN THE GLASS TO METAL HEADER.						
CORRECTIVE ACTION-THE SEMICONDUCTOR DIVISION OF HUGHES AIRCRAFT HAS ISSUED SPECIFICATION NO. 1-N DATED 11 SEPTEMBER 1961 SPECIFYING VERY THOROUGH MECHANICAL AND ELECTRICAL PREPRODUCTION AND POST PRODUCTION INSPECTION TESTS. THE CRITICAL CENTERING AND WELDING OF JUNCTION LEADS HAS BEEN AUTOMATED TO ELIMINATE ANY HUMAN ERROR IN WORKMANSHIP.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-233 DIODE	FAR 27-41001-929	17E 610813	ETR	YES NO	
FAILURE MODE-ELECTRICAL OPEN. DURING THE PRECOUNT OPERATION, CONTINUITY CHECKS INDICATED THAT DIODE CR-1 IN THE BOOSTER JETTISON CIRCUITRY HAD FAILED. THE FAILURE WAS CONFIRMED. THE DIODE WOULD FAIL INTERMITTENTLY OPEN-CIRCUITED WHEN ONE LEAD WAS VERY SLIGHTLY DISPLACED. THE SILICON BUTTON WITHIN THE DIODE HAD BEEN DISPLACED FROM ITS MOUNTING WAY EITHER IN DIODE MANUFACTURE OR ON INSTALLATION.						
CORRECTIVE ACTION-60/C IS INVESTIGATING THE LEAD FORMING OPERATION PERFORMED ON DIODES AND RESISTORS PRIOR TO THEIR INSERTION INTO THE PROGRAMMER CIRCUIT BOARDS. ACTION TO IMPROVE THIS OPERATION WILL BE TAKEN, WHERE NECESSARY.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-239	FAR 27-45203-3	22E 610814	ETR	YES NO	60/C
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE ROLL PROGRAMMER SET CLUTCH APPEARED TO SLIP IN TRANSFER TIME FROM MINUS TO A PLUS POSITION DURING THE PERFORMANCE OF PROGRAMMER EVALUATION. THE FAILURE COULD NOT BE CONFIRMED. IT WAS CONCLUDED THAT THE SUBJECT ITEM IS IN NORMAL OPERATING CONDITION AND THAT THE FAILURE SYMPTOMS AT ETR WERE DUE TO SOME OTHER CAUSE.						
CORRECTIVE ACTION-NONE.						

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI O/H	VENDOR NAME VENDOR PART N°	
AUTOPILOT-SQUARE-A/B PROGRAMMER	AAB1-0073/PI-901-00-17 DIODE	COUNTDOWN	910814	11 -7000	YES NO	YES NO	893739
FAILURE MODE-OPEN (ELECT). SHUNT DIODE IN BOOSTER JETTISON SWITCH OF PROGRAMMER FOUND TO BE OPEN.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-NONE. PROBLEM WAS RESOLVED AND PROGRAMMER REPLACED DURING HOLD FOR ANOTHER REASON.							
CORRECTIVE ACTION-PROGRAMMER REPLACED. (CORRECTIVE ACTION ON PROGRAMMER UNKNOWN).							
AUTOPILOT-SQUARE-A/B PROGRAMMER	9K-04-210 CIRCUIT BOARD	FAR 27-45201-819	910526	FAPB	YES NO	YES NO	898989
FAILURE MODE-FAIL DURING OPERATION-DURING APACHE TEST RECEIVED NO-GO ON ROLL GUIDANCE ENABLE SWITCH ON FOUR SUCCESSIVE RUNS. SWITCHES 9, 10, AND 11 CHANGED STATE ERRATICALLY SO THAT ROLL GUIDANCE ENABLE IMPROPER. CONFORMAL COATING POUND ON ATAL CIRCUIT BOARD PINS.							
CORRECTIVE ACTION-INSPECTION OF ALL CIRCUIT BOARD PINS FOR CONFORMAL COATING AND NEW MANUFACTURING TECHNIQUE TO PREVENT CONFORMAL COATING SETTING ON PINS DURING MANUFACTURE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-232 TRANSISTOR	FAR 27-45301	1000 910518	ETN	YES NO	YES NO	895134
FAILURE MODE-ERRATIC OPERATION-THE ASIS SIGNAL FROM THE PROGRAMMER WAS 10 SECONDS EARLY, THE PVT SIGNAL WAS 90 SECONDS EARLY, AND THE PROGRAMMER RESET AT 207.5 SECONDS. THE FAILURES WERE DUE TO A FAULTY TRANSISTOR (RHEEM 2M457) ON THE COMPUTER BOARD ASSEMBLY. THE 64 TRANSISTOR ON THE OUTPUT OF THE TS BINARY WAS FAILING INTERMITTENTLY.							
CORRECTIVE ACTION-NONE, AS THIS IS THE FIRST FIELD FAILURE OF THIS TRANSISTOR.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	9K-04-203	FAR 27-45201-819	15E 910513	FAPB	NO NO	NO NO	898974
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-DURING HYDRAULIC FILL AND BLEED PROCEDURES, THE BOOSTER ENGINES FAILED TO GIMBAL AS PROGRAMMED.							
CORRECTIVE ACTION-NONE ON THIS ITEM. THE SERVO-AMP-FILTER IN THE AUTOPILOT SUB-SYSTEM AT THE TIME OF FAILURE CAUSED ERRONEOUS REJECTION OF THE PROGRAMMER.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-231	FAR 27-41001-927	12E 810310	ETR	NO NO		993773
FAILURE MODE-ERRATIC OPERATION DUE TO TRANSIENTS ON THE 115 VOLT INPUT LINES TO THE PROGRAMMER WHEN THE ARMA HOLD-R ESUME SWITCH WAS ACTIVATED RESULTED IN INTERMITTENT PROGRAMMER RESETS. FAILURE ANALYSIS INDICATED THAT THERE WAS NO PROGRAMMER FAILURE.							
CORRECTIVE ACTION-IT IS RECOMMENDED THAT THE AGENCY OR AGENCIES RESPONSIBLE FOR THE ASSOCIATE CONTRACTOR INTERFACE PROBLEMS, INVESTIGATE AND CORRECT TRANSIENT VOLTAGE PROBLEMS WHICH MIGHT CAUSE PROGRAMMER RESET ACTIONS.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-233 CIRCUIT BOARD/TRANSISTOR	FAR 27-41001-917	12E 810302	11	YES NO		993772
FAILURE MODE-ELECTRICAL SHORT. THE PROGRAMMER WOULD NOT RESET PROPERLY AND EXHIBITED AN IMPROPER PITCH OUTPUT. THE MALFUNCTION RESULTED FROM A FAULTY TRANSISTOR Q3 ON CIRCUIT BOARD. THE BERYLCO 10 DESICCANT RETAINING RING WAS DIST ORTED AND HAD MOVED TO THE BED OF THE TRANSISTOR SHORT-CIRCUITING THE INTERNAL CONNECTIONS OF THE TRANSISTOR.							
CORRECTIVE ACTION-G.E. IS INITIATING ACTION TO SECURE THE DESICCANT RETAINING RING IN THE TRANSISTOR.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-203 CIRCUIT BOARD/DIODE	FAR 27-41001-909	YE 810300	WTR	NO NO		999976
FAILURE MODE-FAIL DURING OPERATION-CR-3 DIODE ON CIRCUIT BOARD US42A2 BURNED OPEN BY OVERLOAD DURING NET CABLE COMM ECTOR PROBLEM JUST PRIOR TO THE PROGRAMMER FAILURE.							
CORRECTIVE ACTION-WTR APPRAIZED OF ANALYSIS RESULTS. SECONDARY FAILURE REQUIRES NO OTHER ACTION.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-204	FAR 27-45201-919	14E 810430	FAPB	YES NO	50/C	999978
FAILURE MODE-FAIL DURING OPERATION-DURING APCHE CHECK NO-GO CARDS 131, 139, AND 140 WERE RECEIVED (LAST STEP IN P-17 CH PROGRAM, BOOSTER CUT-OFF, AND BOOSTER JETTISON RESPECTIVELY).							
CORRECTIVE ACTION-NONE-THE FAILURE WAS NOT CONFIRMED.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0243/P4-401-00-100 CONNECTOR ON CIRCUIT BOARD A1A1	FLIGHT 27-43301-3	1000 810425	14 0.	YES YES		897430
<p>FAILURE MODE-OPEN/IECT-CONFORMAL PLASTIC COATING WAS FOUND ON CIRCUIT BOARD A1A1 CONNECTOR PINS OF THE RECOVERED PROGRAMMER. THIS WOULD CAUSE DISCONTINUITY AND SUCH A CONDITION ON PIN 1 WOULD PREVENT PROGRAMMER FROM RUNNING. THIS IS ONLY ONE OF SEVERAL POSSIBILITIES FOR PROGRAMMER FAILURE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNAL-THERE WAS NO EVIDENCE OF THE ROLL OR PITCH PROGRAMS OR ACTIVATION OF SWITCH 15</p> <p>VEHICLE EFFECT-IMPROPER TRAJECTORY-FAILURE OF A/P TO GENERATE ROLL AND PITCH PROGRAMS NECESSITATED RANGE SAFETY DES TRUCTION AT 42.34 SECONDS.</p> <p>CORRECTIVE ACTION-CORRECTIVE ACTION CONCERNING CONFORMAL COATING TECHNIQUES IS UNKNOWN. HOWEVER, SEVERAL PACKAGING CHANGES WERE INCORPORATED AS A RESULT OF THIS FAILURE- METAL WASHERS WERE REPLACED BY FIBRE WASHERS, ADDITIONAL CLEARANCE WAS PROVIDED FOR MODULE FRAMES IN VICINITY OF PRINTED CIRCUIT BOARD CONNECTORS.</p>							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0243/P4-401-00-100	FLIGHT 27-43301-3	1000 810425	14 0.	YES YES		897430
<p>FAILURE MODE-SHORT-28 VOLT LEAKAGE ON THE RESET LINE AFTER UNBILICAL EJECTION, EITHER AT THE UNBILICAL FACE OR ELSE WHERE EXTERNAL TO THE PROGRAMMER.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNAL-THERE WAS NO EVIDENCE OF THE ROLL OR PITCH PROGRAMS OR ACTIVATION OF SWITCH 15</p> <p>VEHICLE EFFECT-IMPROPER TRAJECTORY-FAILURE OF A/P TO GENERATE ROLL AND PITCH PROGRAMS NECESSITATED RANGE SAFETY DES TRUCTION AT 42.34 SECONDS.</p> <p>CORRECTIVE ACTION-REVISED RESET CIRCUITRY TO INHIBIT RESET INFLIGHT, ELIMINATING POSSIBILITY OF INADVERTENT RESET OR LEAKAGE PROBLEMS.</p>							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0243/P4-401-00-100	FLIGHT 27-43301-3	1000 810425	14 0.	YES YES		897430
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. POSSIBLE STOPLINE LEAKAGE TO GROUND AT THE UNBILICAL FACE OR ELSE WHERE EXTERNAL TO THE PROGRAMMER.</p> <p>SYSTEM EFFECT-OPERATION DOES NOT START-THERE WAS NO EVIDENCE OF THE ROLL OR PITCH PROGRAMS OR ACTIVATION OF SWITCH 15.</p> <p>VEHICLE EFFECT-IMPROPER TRAJECTORY-FAILURE OF A/P TO GENERATE ROLL AND PITCH PROGRAMS NECESSITATED RANGE SAFETY DES TRUCTION AT 42.34 SECONDS.</p> <p>CORRECTIVE ACTION-ADDED FILTERS TO ALL 115 VOLT, 28 VOLT, DISCRETE COMMAND, START AND STOP INPUT TO THE PROGRAMMER. ALTERED THE R10 AND STOP CIRCUITS TO ELIMINATE LEAKAGE.</p>							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME	DATE DIP	PRI OTM	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	AE61-0845/P4-401-00-100	FLIGHT 27-45301-3	1000 910425	14 0.	YES YES		957437
<p>FAILURE MODE-ERRATIC OPERATION-A POSSIBLE REPETITIVE TRANSIENT FROM RF OR ELECTRICAL INTERFERENCE WHICH WOULD CAUSE THE PROGRAMMER TO CONTINUALLY RESET.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNAL. THERE WAS NO EVIDENCE OF THE ROLL OR PITCH PROGRAMS OR ACTIVATION OF SWITCH 1.</p> <p>VEHICLE EFFECT-IMPROPER TRAJECTORY-FAILURE OF 1/P TO GENERATE ROLL AND PITCH PROGRAMS NECESSITATED RANGE SAFETY DESTRUCTION AT 42.34 SECONDS.</p> <p>CORRECTIVE ACTION-THE ASIS ENABLE RELAY WIRE WAS REMOVED FROM THE PROGRAMMER START LEAD AND ROUTED THROUGH SEPARATE PIN OF P1001. SUPPRESSION DIODES ADDED TO RELAYS IN ASIS UNIT. RE-ROUTED ASIS ARM SIGNAL LEADS. CURRENT LIMITERS WERE INCORPORATED IN THE HIGH POWER SWITCH OUTPUT CIRCUITRY.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AA61-0039/P4-400-01-100 TIMER CIRCUIT	COMPOSITE-J FACT 27-45301-3	1000 910418	14 200	YES NO		895691
<p>FAILURE MODE-ERRATIC OPERATION. PROGRAMMER RESET TO ZERO AT 200 SECONDS. PROBLEM LATER ISOLATED TO Y-MER CIRCUITRY.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. BOOSTER CUTOFF BACKUP DISCRETE NOT RECEIVED DURING LOOP TEST BECAUSE OF ERRATIC TIMER OPERATION.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. AN EXISTING HOLD WAS EXTENDED TO REPLACE THE PROGRAMMER.</p> <p>CORRECTIVE ACTION-REPLACE PROGRAMMER. (I.R. 583048).</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AD61-0117/DA-426/82-4MO-DE-85	COMPOSITE-PRO/DPL 810403	9/D 810403	9768-2 NO	YES NO		894789
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PITCH DISPLACEMENT GYRO RESPONDING TO GUIDANCE COMMANDS WHEN THESE COMMANDS SHOULD HAVE BEEN LOCKED OUT.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED.</p> <p>CORRECTIVE ACTION-PROGRAMMER REPLACED.</p>							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AE61-0878/PC-3CO-01-025	COMPOSITE-FACTORY 910322	25E 910322	FACTORY NO	NO NO		
<p>FAILURE MODE-FAIL DURING OPERATION. THE JETTISON BOOSTER FUNCTION INDICATED A GLITCH PRIOR TO ACTIVATION OF THE FUNCTION. THE GLITCH WAS ATTRIBUTED TO CIRCUITRY AND DIODES IN THE AGE.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION-FAULTY AGE CAUSED ERRATIC OPERATION OF AIRBORNE SYSTEM.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. RE-RUN OF COMPOSITE MADE TO SHOW PROPER OPERATION.</p>							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRB/MME

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-THE AGE FLIGHT CONTROL PANEL WAS REPLACED.							840340
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE81-0267/PC-SCQ-01-038	COMPOSITE-FACTORY	25L 810322	FACTORY	NO	50/C NO	897672
FAILURE MODE-ERRATIC OPERATION-CHANNEL 2 OF MIDWESTERN RECORDER NO. 2, MONITORING THE JETTISON BOOSTER PACKAGE FUNCTION, INDICATED A GLITCH PRIOR TO ACTIVATION OF THE FUNCTION. THE GLITCH WAS ATTRIBUTED TO COMMUTATE CIRCUITRY AND D TONES IN THE AGE.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-THE FLIGHT CONTROL AGE CONTROL PANEL WAS REPLACED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE81-0267/PC-SCQ-02-038	COMPOSITE-FACTORY	38E 810319	50/C	NO	FACTORY NO	898404
FAILURE MODE-ERRATIC OPERATION-THE TEST PROGRAMMERS CAUSED AN UNEXPECTED BOOSTER ENGINE MOVEMENT PRIOR TO SERVO MIA SES AT 31 AND 59 SECONDS.							
SYSTEM EFFECT-ERRATIC OPERATION-UNEXPECTED BOOSTER ENGINE MOVEMENTS CAUSED BY SIMULTANEOUS FUNCTIONS PROGRAMMED ON TEST PROGRAMMER TAPES.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING REQUIRED TO FIND CAUSE.							
CORRECTIVE ACTION-THE TEST PROGRAMMER TAPES WILL BE REVISED TO ALLEVIATE THIS PROBLEM ON FUTURE TESTING.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE81-0267/PC-SCQ-01-038 SWITCH	COMPOSITE-FACTORY	38E 810318	FACTORY	YES NO		898402
FAILURE MODE-FAIL TO OPERATE AT THE PRESCRIBED TIME. THE VERNIER CUTOFF COMMAND SWITCH IN THE PROGRAMMER PACKAGE FA ILED TO ACTIVATE UPON RECEIPT OF THE VERNIER CUTOFF DISCRETE FROM THE INERTIAL GUIDANCE SYSTEM. THE PROGRAMMER WAS R ENLACED.							
SYSTEM EFFECT-OPERATION DOES NOT START. VERNIER CUTOFF SWITCH DID NOT OPERATE.							
VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED OR RESCHEDULED. COMPOSITE REARM.							
CORRECTIVE ACTION-PROGRAMMER IR/D AND REPLACED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE81-0047/PS-SCQ-01-16 VERIN" SPLICE	COMPOSITE-S FACT	18E 810317	13	YES NO		
FAILURE MODE-OPEN (ELECT), AN OPEN CIRCUIT IN THE RE-ENTRY VEHICLE PRE-ARM CIRCUIT WAS FOUND TO BE CAUSED BY A WIRE PULLED OUT OF A SIX WIRE SPLICE.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITC TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. THE PROGRAMMER FAILED TO BLOW THE FUSE IN THE RE-ENTRY VEHICLE PRE-ARM CIRCUIT.						093092
	VEHICLE EFFECT-NONE.						
	CORRECTIVE ACTION-UNKNOWN. THE PROGRAMMER WAS REPLACED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-260 CIRCUIT BOARD	FAR 27-41001-909	19C 810314 D	FAIRCHILD	YES	GD/C NO	093777
FAILURE MODE-ELECTRICAL OPEN. DURING APACHE TESTS THE BOOSTER ENGINES CONTINUED TO GIMBAL AFTER BOOSTER ZERO COMMAND HAD OCCURRED. FAILURE ANALYSIS DETERMINED THAT THE FAILURE WAS DUE TO CONFORMAL COATING ON PIN 36 OF THE A12AL CIRCUIT BOARD CONNECTOR.							
CORRECTIVE ACTION-GD/C HAS INITIATED IMPROVED INSPECTION PROCEDURES FOR CONFORMAL COATING PER ECP 1113. A NEW TECHNIQUE HAS BEEN DEVELOPED FOR PROTECTING BOARD PINS DURING CONFORMAL COATING WHICH HAS ELIMINATED THIS PROBLEM IN THE FACTORY.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-186 CIRCUIT BOARD CONNECTOR	FAR 27-41001-901	610307	WTR	YES	GD/C NO	094386
FAILURE MODE-ELECTRICAL OPEN. DURING LABORATORY TESTING HIGH POWER SWITCH 18 FAILED TO OPERATE. FAILURE WAS DUE TO CONFORMAL COATING, LEFT DURING MANUFACTURING, ON PIN 35 OF THE USAS22 CIRCUIT BOARD.							
CORRECTIVE ACTION-(1) ALL NEW MANUFACTURED CIRCUIT BOARDS ARE INSPECTED UNDER ULTRA VIOLET LIGHT FOR CONFORMAL COATING. (2) ALL FIELD CANNISTERS ARE BEING INSPECTED AND CLEANED DURING THEIR RETURN TO THE FACTORY (3) GD/C DEVELOPED A NEW TECHNIQUE FOR PROTECTING BOARD PINS DURING CONFORMAL COATING.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	99-04-174 CIRCUIT BOARD	FAR 27-41433-9	610302	FACTORY	YES	NO	094750
FAILURE MODE-SHORT-CANNISTER LEVEL TESTING AFTER PRODUCTION VIBRATION TESTING INDICATED THAT THE PROGRAMMER PITCH 2 ASSEMBLY WAS SHORT CIRCUITED BETWEEN PIN 29 AND 30. FAILURE WAS DUE TO A WIRE CLIPPING THAT WAS TRAPPED BETWEEN THE PLUG BODY AND THE CIRCUIT BOARD.							
CORRECTIVE ACTION-GD/C IMPROVED FACTORY CLEANLINESS PROCEDURE. FACTORY PERSONNEL APPLIED OF THE PROBLEMS ASSOCIATED WITH SOLDER AND WIRE DEBRIS.							

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GENERAL DYNAMICS
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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B PROGRAMMER	90-04-176 CIRCUIT BOARD TRANSISTOR	FAR 87-41001-903	97D 810222	WTR	NO NO	094798
FAILURE MODE-ELECTRICAL SHORT. DURING SYSTEM TESTS THE PROGRAMMER ZERO INDICATION WOULD NOT DISAPPEAR WHILE THE PROGRAMMER WAS RUNNING. THE SAFE-ARM PROGRAMMER FUNCTION WAS INTERMITTENT WHEN OPERATED. FAILURE WAS DUE TO TRANSISTOR Q-10 SHORT CIRCUITING CAUSING THE ARM-SAFE 28 VDC TO APPEAR ON THE PROGRAMMER ZERO INDICATION LINE.						
CORRECTIVE ACTION-TVA 37369 RELEASED TO REMOVE THE EXCESS ELECTRICAL LOAD FROM THE Q-10 TRANSISTOR						
AUTOPILOT-SQUARE-A/B PROGRAMMER	AE51-0092/FC-5CO-02-031 SWITCH-ELECTRONIC	COMPOSITE-FACTORY	31E 810208	FACTORY	YES NO	098392
FAILURE MODE-ERRATIC OPERATION-PROGRAMMER PRODUCED A GLITCH AT SUSTAINER CUTOFF. ALSO HIGH POWER SWITCH 12 RESET 2 SECONDS AFTER ACTIVATION-SHOULD REMAIN ON.						
SYSTEM EFFECT-ERRATIC OPERATION. GLITCH ON PROGRAMMER OUTPUT AND UNSCHEDULED RESET OF SWITCH 12.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. RETURN OF COMPOSITE MADE WITH NEW PROGRAMMER.						
CORRECTIVE ACTION-PROGRAMMER REPLACED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	90-04-171 CIRCUIT BOARD DIODE	FAR 87-41001-909	TE 810208	VAFB	YES NO	094798
FAILURE MODE-ELECTRICAL OPEN. DURING TESTING THE PROGRAMMER FAILED TO GENERATE THE BOOSTER CUT-OFF SIGNAL (BCO). FAILURE WAS DUE TO DIODE CR-5 BEING OPEN CIRCUITED. DUE TO A HISTORY OF INTER FACE PLUS RECEPTACLE PROBLEMS, ACCIDENTAL GROUNDING OF THE BCO LINE IS CONSIDERED TO BE THE CAUSE.						
CORRECTIVE ACTION-CO/C APPRIEZED BASE PERSONNEL OF THE FAILURE AND SUSPECTED CAUSE SO THAT SIMILAR FAILURES CAN BE AVOIDED IN THE FUTURE.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	AC-91-0065/82-302-A2-06	CAPTIVE	82 810207	SYC 120-12	YES NO	094798
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE AUTOPILOT PROGRAMMER FAILED TO SUPPLY A DISCRETE CUTOFF SIGNAL TO THE SUSTAINER ENGINE RELAY BOX.						
SYSTEM EFFECT-OPERATION DOES NOT START. THE LACK OF A DISCRETE SIGNAL RESULTED IN THE SUSTAINER ENGINE FIRING FOR 0.67 SECONDS LONGER THAN EXPECTED. CUTOFF WAS INITIATED BY BACKUP ENGINE TIMER.						
VEHICLE EFFECT-LATE SUSTAINER ENGINE CUTOFF.						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-THE PROGRAMMER WAS REMOVED AND SENT TO PLANT 71 (SAN DIEGO) FOR FAILURE ANALYSIS.							999087
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0092/PC-SCO-01-031	COMPOSITE-FACTORY	31E 610203	FACTORY	NO	60/C NO	999466
FAILURE MODE-FAILURE TO OPERATE AT PRESCRIBED TIME. THE FLIGHT CONTROL PROGRAMMER RAN SLOW. THIS CONDITION CAUSED IN ASKING OF INTEGRATOR WALLING AT SUSTAINER CUTOFF. FAULT WAS CAUSED BY LOW INVERTER FREQUENCY. SYSTEM EFFECT-OPERATION STARTS TOO LATE- LOW INVERTER FREQUENCY CAUSED PROGRAMMER TO BE LATE IN GENERATING ITS OUTPUT FUNCTIONS. VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE REARM. CORRECTIVE ACTION-INVERTER RESET.							999399
AUTOPLOT-SQUARE-A/B PROGRAMMER	A-90-04-3102-P ACCELEROMETER-CAPACITOR	FAR 27-04099-1	109D 610202	1-1	YES	EDCLIFF NO	999320
FAILURE MODE-SHORT (ELECT)-INTERMITTENT GROUND CAUSED BY ELECTROLYTIC CAPACITOR FAILURE. CORRECTIVE ACTION-UNKNOWN. FIELD PERSONNEL CAUTIONED TO CHECK TEST EQUIPMENT FOR POSSIBLE OVERLOAD CONDITION OR INCORRECT POLARITY.							999320
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0007/PC-SCO-01-021 DIODE	COMPOSITE-FACTORY	21E 610130	FACTORY	YES NO		999320
FAILURE MODE-OUT OF SPECIFICATION-THE SECOND LEVEL OF THE PITCH PROGRAM VOLTAGE WAS 1.6 V WHEN 2.10 PLUS OR MINUS 0.2V WAS SPECIFIED. AN OPEN DIODE IN THE PITCH PROGRAM CONTROL MATRIX WAS THE CAUSE. SYSTEM EFFECT-IMPROPER ANALOG SIGNAL. VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE RETEST WAS REQUIRED. CORRECTIVE ACTION-THE PROGRAMMER WAS REPAIRED AND REINSTALLED ON THE VEHICLE.							999320
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE61-0034/PC-SCO-01-018	COMPOSITE-FACTORY	18E 610128	FACTORY	NO	60/C NO	999320
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SUSTAINER CUTOFF DISCRETE SIGNAL WAS INITIATED TOO EARLY DUE TO THE DIFFERENCE IN FREQUENCY BETWEEN THE INVERTER, WHICH DRIVES THE A/P COUNTER AND THE CRYSTAL CONTROLLED GUIDANCE COMPUTER. SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							999320

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COMPOSITE DELAYED. PARTIAL COMPOSITE RETEST WAS REQUIRED.							090044
CORRECTIVE ACTION-THE AIRBORNE INVERTER FREQUENCY WAS READJUSTED TO COINCIDE WITH THE COMPUTER FREQUENCY.							094922
AUTOPLOT-SQUARE-A/B PROGRAMMER	9K-04-145	FAR 27-41001-809	15E 610112	VAFB	NO NO		094733
FAILURE MODE-ERRATIC OPERATION-DURING MARCHE TESTS NO-GOS WERE RECEIVED AND THE PROGRAMMER STOPPED. FAILURE BELIEVED TO BE CAUSED BY OSCILLATIONS THAT APPEAR ON THE MARCHE STOP LINE.							
CORRECTIVE ACTION-ALL PROGRAMMERS RETURNED TO GO/A FOR MODIFICATION TO CHANGE THE MANNER IN WHICH THE STOP FUNCTION IS PERFORMED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	9K-04-170 CIRCUIT BOARD CAPACITOR	FAR 27-41001-893	15E 610112	PAFB	YES NO		090643
FAILURE MODE-ELECTRICAL OPEN. DURING MARCHE TESTS NO-GOS WERE OBTAINED ON 21 CARDS FOLLOWING CARD 40. PROGRAMMER WAS OPERATING AT TWICE ITS NORMAL SPEED. FAILURE WAS DUE TO OPEN CIRCUITING OF THE C-8 CAPACITOR CAUSING THE CPG-8 BIN ARY ON THE USAI1 CIRCUIT BOARD TO OPERATE IMPROPERLY. RESISTOR R-8 ON THE SAME BOARD WAS CHARGED. RIPPLE ON THE PLU S 40 VOLT LINE DUE TO THE OPEN- CIRCUITING OF THE C-8 CAPACITOR CAUSED THE BINARY TO OPERATE IMPROPERLY.							
CORRECTIVE ACTION-CAUSE OF FAILURE COULD NOT BE DETERMINED. BELIEVED TO BE AN ISOLATED OCCURRENCE. GO/C WILL INTENSIFY SURVEILLANCE OF THIS CIRCUIT BOARD.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE81-0053/FC-SC0-01-017	COMPOSITE-FACTORY	17E 610107	FACTORY	NO NO		
FAILURE MODE-ERRATIC OPERATION. THE AIRBORNE ROLL INTEGRATOR WAS NOT CONTROLLED BY THE TEST PROGRAMMER DUE TO AN IM CORRECTLY WIRED AGE CONTROL PANEL.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. POST COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-CORRECTED AGE CONTROL PANEL WIRING.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	9B-04-080 AMPLIFIER-INTEGRATOR	FAR 7-41011-977	908405	ETR	YES NO	GO/C	
FAILURE MODE-ERRATIC OPERATION-DURING TESTING, THE YAW INTEGRATOR AMPLIFIER OUTPUT WAS INTERMITTENT. A SOLDER BLOB AND PIECE OF LACING THINE WERE WEDGED BETWEEN AMPLIFIER AND MOUNTING BLOCK.							

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DIFFICULTIES REVIEW-AUTOP. LOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	D.F. DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-PROGRESSIVE INSPECTION OF ELECTRO MECH INTEGRATOR BLOCK INITIATED DURING SUB-ASSEMBLY.							897893
AUTOPLOT-SQUARE-A/B PROGRAMMER	90-04-134	FAR 27-41001-909	7E 601228	WTR	YES NO	YES NO	898391
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING MARCHE CHECKOUT THE UNIT FAILED TO SEND PROPER OUTPUT S18 WALS AFTER STAGING.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AESU-0013/PC-4CO-04-088	COMPOSITE-FACTORY	88D 601222	FACTORY	YES NO	YES NO	898667
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. ALL STAGING FUNCTIONS OCCURRED 1.3 SECONDS LATER THAN NOMINAL IN R EFFECT TO GUIDANCE STAGING DISCRETE COMMAND. CAUSE UNKNOWN. SYSTEM EFFECT-OPERATION STARTS TOO LATE. VEHICLE EFFECT COMPOSITE RE-SCHEDULED. PROGRAMMER REPLACED AND PROPER OPERATION VERIFIED ON SUBSEQUENT COMPOSITE.							
CORRECTIVE ACTION-THE PROGRAMMER WAS REPLACED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AESU-0013/PC-4CO-04-088	COMPOSITE-FACTORY	88D 601222	FACTORY	YES NO	YES NO	898320
FAILURE MODE-FAIL DURING OPERATION-ROLL PROGRAMMER WAS IMPROPERLY SET, RESULTING IN GAINS 37 PERCENT BELOW NOMINAL. SYSTEM EFFECT-OPERATION TO LOW. VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING REQUIRED. CORRECTIVE ACTION-ROLL PROGRAMMER RESET.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	90-04-183	FAR 27-41001-909	7E 601222	WTR	YES NO	YES NO	
FAILURE MODE-ERRATIC OPERATION. DURING APACHE AUTOPLOT-GUIDANCE INTEGRATEL TEST THE PROGRAMMER RESET TO ZERO, FOLLOWING A PERIOD DURING WHICH IT STOPPED, INSTEAD OF CONTINUING TO RUN, AFTER IT WAS RESTARTED. FAILURE DUE TO A 15 VOL T OSCILLATION ON THE APACHE STOP LINE.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VEHICLE PART NO
CORRECTIVE ACTION-PROGRAMMER RE-DESIGNED TO PERFORM THE STOP FUNCTION IN A DIFFERENT MANNER.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-149 CIRCUIT BOARD CONNECTOR	FAR 27-41001-913	601214	ETR	YES NO	60/C
FAILURE MODE-CONTAMINATION. DURING LABORATORY EVALUATION TEST THE PROGRAMMER FAILED WHEN THE SECOND STEP AT THE PIT CH PROGRAM FAILED TO REACH THE PRESCRIBED VOLTAGE. FAILURE DUE TO CONFORMAL COATING ON THE U3AS2 CONNECTOR PINS.						
CORRECTIVE ACTION-ALL PRINTED CIRCUIT BOARDS RE-INSPECTED UNDER ULTRA-VIOLET LIGHT FOR EXCESSIVE CONFORMAL COATING. ULTRA-VIOLET LIGHT INSPECTION MADE A PART OF THE ROUTINE MANUFACTURING PROCEDURE. ALL RETURNED ELECTRONIC PACKAGES DISASSEMBLED AND REINSPECTED.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	AASO-0139/P2-401-00-91 CLOCK, PROGRAMMER RESET CIRCUIT	COUNTDOWN	91D 601214	12 -420	NO NO	
FAILURE MODE-ERRATIC OPERATION. ERRATIC INADVERTANT PROGRAMMER RESETS DUE TO INDUCED VOLTAGE SURGES IN THE MANUAL RESET CIRCUITRY. CONDITION RESULTED FROM MOMENTARY PULLIN AND DROPOUT OF 3000 PSI RELAY IN BOOSTER HYDRAULIC SYSTEM.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. LOSS OF PROGRAMMER ZERO DUE TO INADVERTANT RESET SIGNALS DURING ENGINE 61MS ALING.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED. PROBLEM UNRESOLVED DURING COUNTDOWN.						
CORRECTIVE ACTION-PLACED DIODES ACROSS 2000 AND 3000 PSI RELAYS.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	90-04-137	FAR 27-41001-893	7-E 601202	WTR	YES NO	60/C
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-DURING APACHE TESTING THE PROGRAMMER WOULD NOT START 50 PER CENT OF THE TIME. FAILURE NOT CONFIRMED. HOWEVER, PROGRAMMER WOULD NOT START WITH 8K OHM LOAD TO GROUND.						
CORRECTIVE ACTION-UNKNOWN. WTR PERSONNEL NOTIFIED REGARDING RESULTS OF THE TESTS.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	AASO-1007/FC-400-08-080 POTENTIOMETER	COMPOSITE-FACTORY	800 601129		YES NO	
FAILURE MODE-OUT OF TOLERANCE. V1 AND V2 PITCH/ROLL GAINS WERE HIGHER THAN EXPECTED DUE TO A MISADJUSTED POTENTIOMETER.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI DTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							892880
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-THE TORQUING POTENTIOMETER WAS READJUSTED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-141 AMPLIFIER	FAR 27-41000-823	801128	ETR	YES NO		894132
FAILURE MODE-OUT OF TOLERANCE-VERNIER 2 PITCH UNBALANCE READINGS WERE OUT OF SPECIFICATION LIMITS. FAILURE NOT CONFIRMED BELIEVED TO BE SOME PROBLEM EXTERNAL TO SERVO AMPLIFIER ASSEMBLY.							
CORRECTIVE ACTION-UNKNOWN. CAUSE OF FAILURE UNDETERMINED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-133 CIRCUIT BOARD-CONNECTOR	FAR 27-41001-899	800	FACTORY	YES 60/C NO		894175
FAILURE MODE- CONTAMINATION. DURING MISSILE CHECKOUT, SWITCH IS OPERATED INTERMITTENTLY. FAILURE WAS DUE TO EXCESSIVE CONFORMAL COATING LEFT ON PRINTED CIRCUIT BOARD CONNECTOR PINS.							
CORRECTIVE ACTION-UNKNOWN. ALL STOCK SURVEYED AND INSPECTED UNDER ULTRAVIOLET LIGHT. ULTRAVIOLET LIGHT INSPECTION MADE A PART OF THE REGULAR MANUFACTURING PROCEDURE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-130 AMPLIFIER-CAPACITOR	FAR 27-41000-807	801118	SYCAMORE	YES NO		894179
FAILURE MODE-ERRATIC OPERATION-DURING A FLIGHT SEQUENCE CYCLE, AT STAGING PLUS 0.8 SECONDS, THE SUSPENSOR STEPPED IN AND OVER IN YAW AT MAXIMUM VELOCITY FOR A DURATION OF APPROXIMATELY 0.2 SECONDS. MALFUNCTION APPEARS ONLY AFTER 2 HOURS OR MORE OF HOLD TIME. CAPACITORS WITHIN THE CANISTER INTEGRATOR SECTION CHARGE AND THEN ULTIMATELY DISCHARGE CAUSING THE ACTION.							
CORRECTIVE ACTION-CIRCUIT REDESIGNED TO PROVIDE BLEEDER RESISTORS TO PRECLUDE FAILURES DURING UNUSUALLY LONG PERIODS WITH POWER APPLIED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-129 CIRCUIT BOARD-TRANSISTOR	FAR 27-41001-823	82	SYCAMORE	YES NO		
FAILURE MODE-OUT OF TOLERANCE-DURING OPERATION ON THE MISSILE THE PROGRAMMER RAN AT 1.6 TIMES THE NORMAL OPERATING SPEED. FAILURE CAUSED BY A POORLY SOLDERED COLLECTOR CONNECTION ON TRANSISTOR Q1.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-TIGHTENED SURVEILLANCE OF PRINTED CIRCUIT BOARD INSPECTION.							894130
AUTOPILOT-SQUARE-A/B PROGRAMMER	AC-60-0048/82-313-A7-02	CAPTIVE 27-41001-889	2E 801118	SYC 34.	YES NO	60/C	899972
FAILURE MODE-FAILURE DURING OPERATION- AT 34 SEC THE PROGRAMMER RAN AT TWICE ITS NORMAL SPEED DUE TO AN APPARENT MALFUNCTION OF THE SEMI- CONDUCTOR IN THE AREA OF THE 1/2 SECOND BINARY.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS- CAUSED BOOSTER ENGINE TO BE GIMBALED DURING SUSTAINER STAGE OPERATION.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-PROGRAMMER WAS IRD.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	30-04-128	FAR 27-41000-813	7E 801110	WTR	YES NO	60/C	894131
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME-DURING MARCHE CHECKOUT THERE WAS NO SIGNAL FROM THE FEEDBACK TRANSDUCER AFTER THE SIGNAL TO THE PITCH INTEGRATOR WAS INITIATED. FAILURE NOT CONFIRMED.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AC-60-0041/82-512-A8-02	CAPTIVE 27-41001-889	2E 801011	SYC 34.26	YES NO	60/C	899971
FAILURE MODE-FAILURE DURING OPERATION- PROGRAMMER FAILED TO MAINTAIN PROPER VOLTAGE DURING STEP 5 OF THE PITCH PROGRAM.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS- IMPROPER PITCH PROGRAM WAS GENERATED.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	84-04-125 CONNECTOR	FAR 27-41001-889	2-E 801008	SYCAMORE	YES NO		
FAILURE MODE-FAILED DURING OPERATION-DURING A STATIC RUN THE PROGRAMMER CORRECTLY GENERATED THE FIRST FOUR PITCH VOLTAGES EXCEPT THE FOURTH VOLTAGE WAS NOT MAINTAINED THE PROPER LENGTH OF TIME. THE FIFTH VOLTAGE STEPPED TO 2.8V. WHICH IS OUT OF TOLERANCE. SUSPECTED CAUSE WAS CONFORMAL COATING ON PITCH MODULE PLUS PINS LEFT ON DURING MANUFACTURING.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PR1 OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-ULTRAVIOLET INSPECTION OF ALL CIRCUIT BOARDS HAS BEEN MADE A PART OF THE REGULAR 60/C INSPECTION. ALL STOCK SURVEYED AND REINSPECTED.						894167
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-124 GYRO-DISPLACEMENT-BEARING	FAR 7-04230	601003	ETR	YES	KEARFOY NO	894168
FAILURE MODE-OUT OF TOLERANCE. REMOVED FROM FIELD GYRO ASSEMBLY BECAUSE OF HIGH AUDIBLE NOISE. GYRO SPEED WAS BELOW 12000 RPM NOMINAL SPEED DUE TO LACK OF LUBRICATION ON ONE 32IN MOTOR BEARING.							
CORRECTIVE ACTION-(1) KEARFOY REVISED BEARING CLEANING PROCEDURE AND TIGHTENED QUALITY CONTROL. (2) 60/C RETROFITTED D AND E SERIES MISSILES WITH GYROS CONTAINING 34RD CIRCUITS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	90-04-084 CANISTER	FAR 27-41001-887	780	ETR	YES	60/C NO	897833
FAILURE MODE-STRUCTURAL-DURING A ROUTINE INSPECTION THE MISSILE A CRACK WAS DISCOVERED IN THE CANISTER HOUSING MOUNTING FEET. PROGRAMMER WAS INSTALLED IN NEW CANISTER. CRACKS PROVED TO BE ONLY SURFACE MAINLINE TYPE THAT COULD BE POLISHED AWAY.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AERO-0848/FC-SCO-03-008	COMPOSITE-FACTORY SE 600924	FACTORY	NO	60/C NO		898439
FAILURE MODE-PREATURE OPERATION- PROGRAMMER PITCH PROGRAM AND SUBROUTINE 3 FUNCTIONS OCCURRED EARLY. INVESTIGATION INDICATED 400 CPS NOISE PICKUP AT THE GROUND SUPPORT EQUIPMENT DIGITAL CLOCK.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS, PITCH PROGRAM AND SUBROUTINE 3 FUNCTIONS OCCURRED EARLY DUE TO NOISE PICKUP.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. REPAIR OF COMPOSITE REQUIRED.							
CORRECTIVE ACTION-THE 642 GROUND 400 CPS PHASE A AND MISSILE 400 CPS PHASE A WERE SHIELDED TO CORRECT THIS CONDITION.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-120 GYRO-DISPLACEMENT	FAR 27-41002-883	600923	ETR	YES	60/C NO	
FAILURE MODE-OUT OF TOLERANCE WHILE PERFORMING YAW DISPLACEMENT SENSITIVITY CHECKS AT THE GYRO LAB. FAILURE COULD NOT BE CONFIRMED AT S.B.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							894170
	CORRECTIVE ACTION-NONE-CAUSE OF FAILURE COULD NOT BE DETERMINED.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	4E60-0648/FC-9CO-08-008 CIRCUIT BOARD	COMPOSITE-FACTORY	SE	YES NO			899441
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- VERNIER ENGINE CUTOFF DISCRETE WAS NOT ISSUED BY PROGRAMMER. SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. VERNIER ENGINE CUTOFF DISCRETE NOT SENT TO PROPULSION SYSTEM. VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE RETESTING REQUIRED. CORRECTIVE ACTION-REPLACED PROGRAMMER.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	88-04-126 CIRCUIT BOARD-TRANSISTOR	FAR 27-41001-855	ZE	SYCAMORE YES 50/C NO			894166
	FAILURE MODE-FAILED DURING OPERATION-DURING STATIC FIRING THE PROGRAMMER FAILED TO PROVIDE PROPER PITCH AND ROLL PROGRAM. TRANSISTOR Q23 ON LOW POWER BOARD 15A8A2 WAS VIBRATION SENSITIVE. CORRECTIVE ACTION-THE M47524 TRANSISTOR WAS REDESIGNED TO IMPROVE ITS TOLERANCE OF VIBRATION ENVIRONMENTS. FUTURE PRODUCTION AT 50/C SUBJECTED TO VIBRATION TESTS.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	88-04-118 CIRCUIT BOARD TRANSISTOR	FAR 27-41001-887	740 600825	ETR	YES 50/C NO		899909
	FAILURE MODE-ERRATIC OPERATION-PROGRAMMER RESET TO ZERO POSITION WAS INCONSISTENT DUE TO HIGH COLLECTOR VOLTAGE ON Q3 TRANSISTOR. CORRECTIVE ACTION-CHANGE TO ADD ZENER DIODE IN COLLECTOR CIRCUIT OF Q3.						
AUTOPLOT-SQUARE-A/B PROGRAMMER	AC-60-0038/88-507-43-02 SWITCH	CAPTIVE	ZE	SE	YES NO		
	FAILURE MODE-FAILURE DURING OPERATION- PROGRAMMER FAILED TO MAINTAIN 1.65 VOLTS DURING STEP 5 OF THE PITCH PROGRAM. POSSIBLY DUE TO A MALFUNCTION IN THE 0.8 VOLT FLIP-FLOP BINARY IN THE PITCH PROGRAM PORTION OF THE PROGRAMMER. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS- DESIRED PITCH PROGRAM WAS NOT ACCOMPLISHED. VEHICLE EFFECT-NONE.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							000070
CORRECTIVE ACTION-FAILURE DID NOT RECUR DURING POST TEST CHECKS.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AESD-034D/P1-404-00-86 CIRCUIT BOARD	FLIGHT	64D 600612	11 292.31	YES NO	YES 60 CONVAIR	000075
FAILURE MODE-ELECTRICAL SHORT, CAUSED BY 28 VOLT SHORT IN RETROCKET WIRING AT RETROCKET FIRING AND RESULTING BU RNOU OF PROGRAMMER PRINTED CIRCUIT BOARD SIMILAR OCCURRENCE DURING RETROCKET FIRING ON 340. SYSTEM EFFECT-OPERATION STOPS PREMATURELY. ALL 28 VOLT DC POWER TO PROGRAMMER LOST WHEN CIRCUIT BOARD BURNED OUT. C YCLING OF THE PROGRAMMER WITH A 24 SECOND PERIOD FOLLOWED THE POWER LOSS. VEHICLE EFFECT-NONE ALL PROGRAMMER SWITCHING FUNCTIONS HAD BEEN ACCOMPLISHED PRIOR TO LOSS. CYCLING OF THE PROGRAMM ER CAUSED VENTING OF THE VERNIER ENGINE TANKS. CORRECTIVE ACTION-CURRENT LIMITERS LATER INSTALLED IN PYROTECHNIC CIRCUITS TO PROTECT PROGRAMMER.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-111 RELAY	FAR 27-41001-871	SE 600608	ETR NO	YES NO		004809
FAILURE MODE-ERRATIC OPERATION-INTERMITTANT ZERO POSITION INDICATION AND INTERMITTANT HIGH POWER SWITCH OUTPUTS DUE TO STICKING K-1 RELAY. CORRECTIVE ACTION-NONE, AS THIS WAS FIRST REPORTED FAILURE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-096 CIRCUIT BOARD/TRANSISTER	FAR 27-41001-867	64D 600722	ETR NO	YES NO		007095
FAILURE MODE-FAILED DURING OPERATION. DURING COUNTDOWN THE PROGRAMMER STOPPED AT SUBROUTINE 2. FAILURE WAS DUE TO A N INTERMITTENT TRANSISTOR Q3 ON THE V3A01 CIRCUIT BOARD. CORRECTIVE ACTION-FIRST FAILURE OF THIS TYPE. CAUSE UNKNOWN. PROGRAMMER TO BE MONITORED FOR RECURRENCE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AESD-0360/PC-500-01-08	COMPOSITE-FACTORY	SE 600707		YES NO		
FAILURE MODE-PREMATURE OPERATION- PROCEDURAL ERROR PREVENTED VERNIER ENGINE CUTOFF FROM OCCURRING. VECO IS LISTED I N PROCEDURE TO OCCUR AT 1+289 SECONDS BUT PROGRAMMER RESETS AT 1+289 SECONDS ON CAPTIVE MISSILES THEREBY BLOCKING NA MUALY SENT VECO. SYSTEM EFFECT-OPERATION DOES NOT START- VECO FUNCTIONS NOT STARTED DUE TO PROCEDURAL ERROR OF SENDING VECO AFTER PR OGRAMMER HAD RESET.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF OTH	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTS REQUIRED TO SHOW PROPER OPERATION OF VECO SUBROUTINE. CORRECTIVE ACTION-NOT KNOWN.							899470
AUTOPILOT-SQUARE-A/B PROGRAMMER	MC-95-04-227 CIRCUIT BOARD	FAR 27-45301-3	1000 800829	14	YES NO		899121
FAILURE MODE-FAIL DURING OPERATION. THE PROGRAMMER ADVANCED TO VCO WHEN A STOP WAS INITIATED. APPROXIMATELY 10 SECS AFTER A RESTART, THE PROGRAMMER WOULD RESET TO ZERO TIME.							
CORRECTIVE ACTION-THE DIGITAL DEVICES GROUP HAS INITIATED ECP-1113 TO MOVE THE STOP LINE AWAY FROM THE VCO MONOSTAB LE MULTIVIBRATOR CIRCUIT TO PRECLUDE THE POSSIBILITY OF A GLITCH VOLTAGE TRIGGERING THE VCO WHENEVER THE PROGRAMMER IS STOPPED. PROGRAMMERS PRODUCED AFTER 3 MARCH 1961 ARE AFFECTED BY THIS CHANGE.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-079 SWITCH	FAH 27-41001-887	800823	FACTORY	NO NO		897294
FAILURE MODE-ELECTRICAL OPEN. DURING ENGINEERING EVALUATION TEST SW 11 GAVE NO INDICATION. MOVABLE CONTACT 10 OF RE LAY K3 WAS BURNED OPEN. BELIEVED TO BE CAUSED BY MISAPPLICATION OF EXCESSIVE VOLTAGE PRIOR TO TEST.							
CORRECTIVE ACTION-NONE-SOURCE OF HIGH VOLTAGE COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AL80-0321/P1-401-00-34 28VDC PROGRAMMER FILTER	FLIGHT	240 800811	11 257.55	YES NO		897434
FAILURE MODE-ERRATIC OPERATION. FIRING THE RE-ENTRY VEHICLE JETTISON AND UMBILICAL EJECT SEQUENCES AT 257.55 SECONDS C AUSED THE 28VDC PROGRAMMER FILTER TO RING.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. RINGING IN THE FILTER CAUSED INTERNAL POWER SUPPLY VOLTAGES TO RING AND CA USED THE PROGRAMMER TO BE ADVANCED TO A 200 COUNT (STAGING DISCRETE) CONDITION AND SO BYPASSED THE RETROCKET FUNCT ION. RETROCKETS WERE FIRED LATE, AT 479.24 SECONDS.							
VEHICLE EFFECT-COMMAND NOT SENT. RETRO-ROCKETS FIRED 479.24 SECONDS LATE.							
CORRECTIVE ACTION-AN ENHANCED 28 VDC PROGRAMMER FILTER WITH BUILT IN DAMPING WAS PLANNED FOR SUBSEQUENT A16 MISSILE 8.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILLOT-SQUARE-A/B PROGRAMMER	AE60-0381/PI-401-00-54 PROGRAMMER CIRCUIT BOARD	FLIGHT	940 C06811	11 478	NO NO		897904
<p>FAILURE MODE-FAIL DURING OPERATION. A PRINTED CIRCUIT BOARD IN THE PROGRAMMER BURNED OUT AT 478 SECONDS DUE TO LARGE SURGE OF CURRENT THROUGH THE BOARD, POSSIBLY CAUSED BY A SHORT IN THE RETROCKET WIRING.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION BURN-OUT OF THE BOARD CAUSED THE PROGRAMMER TO CYCLE ERRATICALLY.</p> <p>VEHICLE EFFECT-NONE. THESE EVENTS OCCURRED AFTER THE PERIOD OF AUTOPILOT USE IN THE FLIGHT.</p> <p>CORRECTIVE ACTION-NONE.</p>							
AUTOPILLOT-SQUARE-A/B PROGRAMMER	AE60-0398/PC-500-01-03	COMPOSITE-FACTORY	5E 800810	FACTORY	YES NO	50/C	898468
<p>FAILURE MODE-FAIL DURING OPERATION- THE BINARY COUNTER IN THE FLIGHT PROGRAMMER STOPPED BETWEEN 13 AND 27 SECONDS. THE EXACT CAUSE FOR THIS CONDITION COULD NOT BE DETERMINED, NOR COULD THE SAME PROBLEM BE DUPLICATED DURING EXTENSIVE TESTING.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION- FLIGHT PROGRAMMER STOPPED FOR 12 SECONDS AT 7:13 DURING TEST.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. RETURN OF COMPOSITE MADE.</p> <p>CORRECTIVE ACTION-NOT KNOWN.</p>							
AUTOPILLOT-SQUARE-A/B PROGRAMMER	AE60-0391/PC-500-01-04	COMPOSITE-FACTORY	4E 800527	FACTORY	NO NO	50/C	898468
<p>FAILURE MODE-ERRATIC OPERATION- VOLTAGE TRANSIENTS IN GROUND DC SUPPLY RESULTED IN AIRBORNE A/P PROGRAMMER BOOSTER JETTISON SWITCH ACTUATIONS.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-NOT KNOWN.</p>							
AUTOPILLOT-SQUARE-A/B PROGRAMMER	AE60-0391/PC-500-01-04 SWITCH 13/ELECTRONIC	COMPOSITE-FACTORY	4E 800527	FACTORY	NO NO		
<p>FAILURE MODE-FAIL DURING OPERATION-THE PROGRAMMER BOOSTER JETTISON SWITCH DEACTIVATED SHORTLY AFTER INITIAL ACTIVATION. THIS HAS BEEN ATTRIBUTED TO VOLTAGE TRANSIENTS IN THE GROUND DC SUPPLY AND TEST SET LINE CAPACITANCE.</p> <p>SYSTEM EFFECT-OPERATION STOPS PREMATURELY-SWITCH DEACTIVATES SHORTLY AFTER ACTIVATION.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED- CORRECTIVE ACTION TO BE ACCOMPLISHED PRIOR TO LAUNCH.</p>							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-CORRECTIVE ACTION TO BE ACCOMPLISHED PRIOR TO MISSILE LAUNCH.							093300
AUTOPILOT-SQUARE-A/B PROGRAMMER	AASD-0035/P1-4CO-01-84 AUTOPILOT PROGRAMMER SWITCH NO.1	COMPOSITE-J FACT	940 600327	11	YES NO		092001
FAILURE MODE-FAIL DURING OPERATION. DURING COMPOSITE TEST, BOOSTER ENGINES DID NOT MALL AT BECO. PROGRAMMER SWITCH DROPPED OUT DUE TO A 40 VOLT INDUCTIVE SURGE WHEN BOOSTER PROPELLANT VALVES CLOSED.							
SYSTEM EFFECT-OPERATION STOPS TOO EARLY. PROGRAMMER SWITCH WAS DEACTIVATED BY A VOLTAGE SURGE. BOOSTER ENGINES DID NOT MALL AT THE PRESCRIBED TIME.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-A FILTER WAS ADDED TO THE DC INPUT OF THE PROGRAMMER TO DAMPEN VOLTAGE SURGES. RESUM OF TEST WAS SATISFACTORY.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-073 SWITCH-ARM/SAFE	FAR 27-41001-987	800317	ETR	YES NO		097602
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-WHILE A CHECKOUT PROCEDURE WAS BEING PERFORMED THE ARM/SAFE SWITCH LOCKED IN THE SAFE POSITION. MOTOR DRIVE GEAR PIN SHEARED.							
CORRECTIVE ACTION-REMOTE SET REDESIGNED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	AERD-0363/PC-5CO-02-03 SWITCH-H1 POWER ELECTRONIC	COMPOSITE-FACTORY 3E	800426	FACTORY	YES NO		088431
FAILURE MODE-ERRATIC OPERATION-A VOLTAGE TRANSIENT CAUSED DEACTIVATION OF A HIGH POWER SWITCH (BOOSTER) JETTISON. THIS SWITCH DEACTIVATED APPROX. 1.4 SECONDS AFTER INITIAL ACTIVATION FOR A DURATION OF 0.8 SECONDS. THIS ALSO OCCURRED DURING SYSTEM TESTING.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-UNKNOWN-PROBLEM WAS TO BE CORRECTED IN FIELD PRIOR TO FLIGHT.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-081 SWITCH	FAR 7-41011-993	800427	ETR	YES NO		
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME-PROGRAMMER GAVE NO INDICATION OF ZERO POSITION AT END OF PROGRAMMER RUN. CAN LET BREWS IN ZERO POSITION WERE LOOSE. SWITCHES 101, 103, 107, AND 109 DID NOT FUNCTION.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-SUB-ASSEMBLY QUALITY CONTROL INSPECTION INTENSIFIED.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-033	FAR 27-41001-843	42D 600200	ETR	YES NO	60/C
FAILURE MODE-ERRATIC OPERATION-DURING THE GUIDANCE INTEGRATED PROCEDURE THE PROGRAMMER OPERATED NORMALLY TO T PLUS 213 SECONDS. THE ITEM THEN ABNORMALLY RESET TO ZERO TIME. FAILURE COULD NOT BE REPEATED.						
CORRECTIVE ACTION-NONE-FAILURE COULD NOT BE TRACED TO ANY PROGRAMMER COMPONENT.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-032 SWITCH-ARM/SAFE	FAR 27-41001-843	42D 600225	ETR	YES NO	
FAILURE MODE-FAIL DURING OPERATION-DURING SYSTEMS CHECKOUT POWER CHANGEOVER SWITCH WOULD NOT SWITCH FROM ARM TO SAFE POSITION.						
CORRECTIVE ACTION-D SERIES REMOTE SET WAS REPLACED BY E SERIES REMOTE SET.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-041 RESISTOR	FAR 27-41001-843	600200	ETR	YES NO	
FAILURE MODE-OUT OF TOLERANCE. RESET TIME WAS IN EXCESS OF THE TWO SECOND SPECIFICATION LIMIT. RESET RELAYS WERE NOT DROPPING OUT DUE TO BIAS VOLTAGES REMAINING. RESISTOR VALUES TOO LOW.						
CORRECTIVE ACTION-BASE 91AS CIRCUITS OF THE HIGH POWER 4 ASSEMBLY RAISED TO 27K AND 100 K OHMS.						
AUTOPILOT-SQUARE-A/B PROGRAMMER	98-04-033 TRANSISTOR	FAR 27-41001-843	42D 600200	ETR	NO NO	60/C
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME-DURING TEST CYCLING OF THE PROGRAMMER THE LAUNCH CONTROL ZERO TIME LIGHT WOULD NOT GO OFF. FAILURE WAS TRACED TO THE 610 TRANSISTOR ON THE HIGH POWER 4 ASSEMBLY. THE LAUNCH CONTROL ZERO LIGHT DREW 600 MA SHORTING THE 100 MA TRANSISTOR.						
CORRECTIVE ACTION-LAUNCH CONTROL EQUIPMENT HAS BEEN MODIFIED TO INCLUDE A RELAY THAT WILL BE PULLED IN BY THE ZERO TIME TRANSISTOR. THIS RELAY WILL KEEP THE LOAD ON THE TRANSISTOR WITHIN SAFE LIMITS.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-047 CIRCUIT BOARD TRANSISTOR	FAR 27-41001-845	420 600200	ETR	NO NO	NO 60/C	090931
FAILURE MODE-ELECTRICAL SHORT. PRESSURIZE PNEUMATIC TANK AND NOSE CONE EJECT SIGNALS WERE MISSING DURING SYSTEM CHECKOUT. THE ZERO RESET LIGHT ALSO OPERATED CONTINUOUSLY. 810 TRANSISTOR WAS BURNED OUT IN PROGRAMMER RESET CIRCUIT.							
CORRECTIVE ACTION-LAUNCH CONTROL EQUIPMENT MODIFIED TO INCLUDE RELAY IN ZERO TIME CIRCUIT. PROGRAMMER REDESIGNED TO REPLACE 4.5 K RESISTORS WITH 27K AND 100K OHM RESISTORS.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-042 CIRCUIT BOARD/RESISTOR	FAR 27-41002-809	420 600121	ETR	YES NO	YES 60/C	090932
FAILURE MODE-OUT OF TOLERANCE. ROLL PORTION OF STATIC GAINS TEST DID NOT GIVE THE PROPER RESPONSE. A 27 OHM RESISTOR WAS INADVERTENTLY INSTALLED IN PLACE OF A 300 OHM RESISTOR.							
CORRECTIVE ACTION-CO/C SUB-ASSEMBLY INSPECTION AND CONTINUITY CHECKS INTENSIFIED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	98-04-039 TRANSFORMER	FAR 27-41001-845	420 600119	ETR	YES NO	YES 60/C	090936
FAILURE MODE-FAIL DURING OPERATION-DURING A SERIES OF TESTS THE BATTERY ACTIVATE LIGHT WAS ON WHEN IT SHOULD HAVE BEEN OFF. INVESTIGATION PROVED THE PROBLEM TO BE A DEFECTIVE AGE RELAY. AFTER THE RELAY WAS REPLACED IT WAS DISCOVERED THAT THE PROGRAMMER HAD FAILED.							
CORRECTIVE ACTION-NONE-CAUSE OF FAILURE COULD NOT BE DETERMINED.							
AUTOPLOT-SQUARE-A/B PROGRAMMER	AE82-0331/32-801-A1-33 TIME/	CAPTIVE 27-43901-5	33F 82314	3-2 30.31	NO NO	NO	090917
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE AUTOPLOT PROGRAMMER GENERATED SUSTAINER CUTOFF SIGNAL AT 0.8 SECONDS LATER THAN PLANNED DUE TO PROGRAMMER TAPE PUNCH ERROR.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. TAPE PUNCH ERROR CAUSED PROGRAMMER TO GENERATE IMPROPER CUTOFF TIME.							
VEHICLE EFFECT-LATE SUSTAINER ENGINE CUTOFF. THIS ALSO RESULTED IN A LATE VERNIER ENGINE CUTOFF SINCE VERNIER CUTOFF TIME IS DEPENDENT UPON THE OCCURRENCE OF SUSTAINER CUTOFF.							
CORRECTIVE ACTION-NONE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3594F RELAY	FAR 88-73900-087	82110	FACTORY	YES NO	UNION SWITCH A NO NO SIGNAL R35HLP88	984999
FAILURE MODE-FAIL DURING OPERATION-DURING MANUFACTURING TESTS THE RELAY REPORTEDLY HAD STICKY OPERATION. THE FAILURE WAS CONFIRMED. THE EXACT CAUSE WAS NOT DETERMINED. HOWEVER, IT WAS ASCERTAINED THAT THE FAULT WAS MECHANICAL IN NATURE, NOT ELECTRICAL. THE NORMALLY OPEN CONTACTS WOULD NOT CLOSE EXCEPT WHEN THE RELAY WAS TAPPED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION COULD BE TAKEN BECAUSE THE EXACT CAUSE OF FAILURE WAS NOT DETERMINED. THE VENDOR WAS INFORMED OF THE RESULTS OF THE FAILURE ANALYSIS. REF- FAR A-99-04-3628 INFO.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A260-1007/FC-4CO-DE-080	COMPOSITE-FACTORY	90D 60118	FACTORY	YES NO	GO/C	989303
FAILURE MODE-PREATURE OPERATION-FLIGHT PROGRAMMER CYCLED FASTER THAN NORMAL. CAUSE UNKNOWN. DURING POST-COMPOSITE TESTING, SUSTAINER CUTOFF SWITCH FAILED TO STAY ACTIVATED. THIS WAS CAUSED BY AN OPEN CONDITION IN THE LOGIC BOARD.							
SYSTEM EFFECT-IM-ROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-COUNTDOWN, COMPOSITE DELAYED ON RE-SCHEDULED. SYSTEMS LEVEL AND COMPOSITE RETESTING REQUIRED.							
CORRECTIVE ACTION-PROGRAMMER REPLACED.							
AUTOPILOT-SQUARE-A/B PROGRAMMER	A-99-04-3249-F	FAR 27-43801-3	82	SCHILLIN	NO NO	GO/C	984102
FAILURE MODE-PREATURE OPERATION-PROGRAMMER ARMED TURNED AFTER 5 SECONDS AFTER COMMIT BUTTON PUSHED. NO MALFUNCTION WAS FOUND IN THE PROGRAMMER.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-5022-F SMRD DIODE-CR-1	FAR 27-73041-1	1430 P50517	WTR	YES NO		984434
FAILURE MODE-OUT OF TOLERANCE. THE GYRO PKG WAS IN/D WHEN THE SMRD OUTPUT WENT TO ZERO. FAILURE ANALYSIS TESTING SHOWED FAILURE WAS DUE TO A TEMPERATURE SENSITIVE SUBASSEMBLY 1 (P/N 27-43183-3) TWENTY FIVE OTHER FAILURES IDENTICAL TO THIS HAVE BEEN ANALYZED. REF. LV-99-04-4606, -4607, -4610, 4634, -4713, -4747, -4732 AND A-99-04-4743 AND -4779.							
CORRECTIVE ACTION-ECP 7630 TO CHANGE DIODES CR-1 AND CR-2 WAS DISAPPROVED BY CUSTOMER. NO FURTHER ACTION.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-5018-F	FAR 27-41002-993	L50416	ETR	NO	60/C	694432
FAILURE MODE-OUT OF TOLERANCE. GYRO PKG WAS IR/D FOR LOW 2-VOLT CCM PITCH PROGRAM SLAVING READOUT OF 0.732. MINIMUM ALLOWED IS 0.740. FAILURE TRACED TO BAD GROUND CONNECTION IN THE ETR TEST SET.							
CORRECTIVE ACTION-BAD GROUND CONNECTION WAS REPAIRED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	69A5321 DISPLACEMENT GYRO	UTP-PET 7-04250-801	640523	60/C	YES	KEARFOIT NO C-70-2506-001	690202
FAILURE MODE-FAIL DURING OPERATION - DURING POST TEMPERATURE TEST PROOF CYCLE C, STICKION OCCURRED IN THE W5 ORIENT ATION. THE STICKION LASTED FOR APPROXIMATELY 62 SECONDS. STICKION WAS CONSIDERED A RANDOM OCCURRENCE.							
CORRECTIVE ACTION-TESTING CONTINUED THROUGH COMPLETION OF PET LOT 6 TEST SATISFACTORILY. STICKION WAS NOT REPEATED AND ALL OTHER REQUIREMENTS ARE IN SPECIFICATION LIMITS. LOT NUMBER 48 IS THEREFORE ACCEPTED FOR PRODUCTION USE. REF CTCN NO. 551-1-020							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	69A5315.1 RATE GYRO	UTP-PET 27-04374-3	640517	60/C	YES	MONEYMELL NO JRS101A3	690256
FAILURE MODE-OUT OF TOLERANCE-DURING SPECIAL PET SCREENING TESTS, ONE UNIT HAD OUT OF TOLERANCE NULL SHIFT VALUE OF 48 MV WHERE 55MV IS ALLOWED. CAUSE UNKNOWN.							
CORRECTIVE ACTION-UNIT WAS REJECTED AND RETURNED TO VENDOR FOR FAILURE INVESTIGATION. REF. CTCN NO. 551-1-019							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-A9-04-5131P AUTOPILOT PACKAGE	FAR 69-42002-6	58-02	FACTORY	YES	60/C	690424
FAILURE MODE-ERRATIC OPERATION DUE TO FINE HEATER VOLTAGE FLUCTUATION. FAILURE WAS ATTRIBUTED TO A MAGNETIC AMPLIFIER DISCREPANCY. EXACT MAG. AMP FAILURE UNKNOWN, SINCE THE FAILURE CAUSE CORRECTED ITSELF.							
CORRECTIVE ACTION-NONE SINCE THE EXACT CAUSE WAS UNDETERMINED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	99C4683 SWITCH, ACCELEROMETER	UTP-PET 27-04099-817	660302:1 1	GO/C	YES NO	LOCLIFF NO 108892-23
FAILURE MODE-OUT OF TOLERANCE, AFTER 400 HOURS LIFE TEST, THE INPUT TRIGGERING LEVELS WERE 6.4346, 6.6666 AND 6.674 6 SUCCESSIVELY. AFTER 300 HOURS OF LIFE TEST, THE INPUT LEVEL WAS 6.6956. THE MAXIMUM SPECIFIED LEVEL IS 6.646. CAUS E IS UNKNOWN BUT TEST METHOD IS SUSPECTED AS BEING IMPROPER.						
CORRECTIVE ACTION-TEST SPECIMEN RETURNED TO VENDOR BUT DISCREPANCY WAS UNCONFIRMED. SPECIMEN WAS RETESTED AT 60/C I N STANDARD'S LAB AND ALSO IN ORIGINAL TEST LAB, THE DISCREPANCY DID NOT REPEAT. FURTHER TESTS ARE IN PROCESS TO SUBST ANTIATE NO DISCREPANCY. EID IS 86-07-10. REF. CTCH NO. 331-1-017 AND 018.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-3123 GYRO PACKAGE	PAR 69-42002-887	3601 660426	ETR/12	YES NO	GO/C
FAILURE MODE-ERRATIC OPERATION. UNIT WAS REJECTED FOR NOISY ROLL SIGNAL AMPLIFIER OUTPUT. THE REPORTED FAILURE WAS NOT CONFIRMED BY FAILURE ANALYSIS.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION CAN BE TAKEN BECAUSE THE FAILURE REPORTED COULD NOT BE CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	99C5003 TWO RATE GYROSCOPE ASSEMBLY	UTP-PAT 69-42003-801	660414	GO/C	YES NO	CONVAIR 69-42003-801
FAILURE MODE-OUT OF TOLERANCE-DURING PAT TEMPER- ATURE VIBRATION, THE PITCH GYRO DEVELOPED A HIGH OFFSET NULL (PLUS 443 MV). UPON TEST COMPLETION, PITCH GYRO DID NOT RESPOND TO AN ANGULAR VELOCITY AND WOULD NOT TORQUE, PHASE ANGLE OF THE OFFSET (PLUS 364 MILLIVOLTS) IS OUT OF TOLERANCE WITH MINUS DEGREES. (SPEC IS ZERO DEGREES OR 180 PLUS OR MIN US 6 DEGREES TWO CAPACITORS ON PITCH GYRO INITIATOR BOARD HAD BROKEN LEADS. CAPACITORS WERE NOT BONDED BY COM FORMAL CONTING TO THE BOARD. SOLDERING OF CAPACITOR LEADS WAS IMPROPER.						
CORRECTIVE ACTION-GYRO PACKAGE TO BE REMOVED. IIRC ALERTED FACTORY AT 60/C TO CONFORMAL COATING PROBLEM. 2.) AN RA R WAS SENT TO DESIGN GROUP REQUESTING THEM TO CHANGE MANUFACTURING SPEC. TO CONFORM TO NASA SOLDERING SPEC. AND PLAC E LOOP AFTER NEEDED LEAD.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	99C5147-1 RATE GYRO	UTP-PET 27-04574-3	660403	GO/C	YES NO	HONEYWELL JR3101A3
FAILURE MODE-OUT OF TOLERANCE-DURING THE POST NO HOURS LIFE TEST PROOF CYCLE 8 THE TEST SPECIMEN STOP OPERATING WHI LE DETERMINING THE UNDAMPED NATURAL FREQUENCY AT ROOM TEMPERATURE. CONTAMINATION WITHIN THE GYRO SIGNAL BEARING WAS THE PROBABLE CAUSE OF ERRATIC GYRO OUTPUT.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-SPECIAL TESTS. TEMPERATURE, LOW LEVEL VIBRATION, TUMBLE, TORQUE AND X-RAY ON ALL UNITS FROM PET L OT 9 WERE CONDUCTED. VENDOR CORRECTIVE ACTION IS DESCRIBED IN HONEYWELL CUSTOMER ENGINEERING LETTER (CEL NO. 60/C-66 -1) TO F. L. WAGNER-DATED MAY 9, 1966. REF. CTCTH NO. 351-1-013						990332
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-3113 TORQUING AMPLIFIER-TRANSFORMER	FAR 99-41922-833	680330	FACTORY	YES	60/C NO	990481
	FAILURE MOD-FAIL TO OPERATE. AMPLIFIER FAILED TO NULL THE GYRO. FAILURE CAUSED BY A BURNED OUT TRANSFORMER T-1 (27 -04180-3) NO OTHER FAULTY COMPONENTS WERE FOUND. NO CAUSE OF FAILURE COULD BE FOUND. MOST PROBABLE CAUSE WAS AN INTERNAL SHORT CIRCUIT BETWEEN TURNS IN THE PRIMARY WINDING.						
	CORRECTIVE ACTION-MANUFACTURING PERSONNEL WERE NOTIFIED OF THIS FAILURE. NO OTHER CORRECTIVE ACTION TAKEN SINCE CAUSE OF FAILURE NOT IDENTIFIED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89C5147.1 RATE GYRO	UTP-PET 27-04374-5	680326		YES	HONEYWELL NO JRS101A3	990198
	FAILURE MODE-OUT OF TOLERANCE DURING PROOF CYCL B OF THE 1ST THE DAMPING RATIO EXCEEDED THE TEST LIMITS AT MINUS 3 0 DEGREES F WHILE IN THE HEAT ON CONDITION. DAMPING RATIO WAS 1.037 (CORRECTED) WHERE TOLERANCE IS 0.95 TO 0.95. CAUSE UNKNOWN BUT COULD BE ONE OR MORE OF FOLLOWING. 1. DAMPING FLUID VISCOSITY IS HIGH 2. TOLERANCE BUILD UP IN TEST EQUIPMENT AND 3. EXCESSIVE FRICTION IN GIMBAL BEARING						
	CORRECTIVE ACTION-VENDOR CONDUCTING TESTS ON A PET UNIT PREVIOUSLY REJECTED WITH THE SAME PROBLEM HEATER DUTY CYCLE AND GYRO CASE TEMPERATURE WILL BE RECORDED FOR COMPARISON WITH 60/C DATA. TESTING CONTINUED WITH LOT 9. REF CTCTH N O-351-1-014						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-3113 CIRCUIT BOARD CAPACITOR	FAR 99-42003-801	680315	FACTORY	YES	60/C NO	990479
	FAILURE MODE-FAIL DURING OPERATION. PACKAGE FAILED DURING PAT VIBRATION WHEN THE PITCH GYRO DID NOT RESPOND TO ANY INPUT. FAILURE TRACED TO A DEFECTIVE CAPACITOR C-3 WHICH HAD A BROKEN LEAD (ON CIRCUIT BOARD P/N 69-41996-9) ALL CAP ACTORS WERE FOUND TO HAVE IMPROPERLY BENT LEADS.						
	CORRECTIVE ACTION-FACILITY AND INSPECTION PERSONNEL WERE NOTIFIED OF RESULTS OF THIS ANALYSIS AND THE REQUIREMENTS OF F MOBI-08981 AS IT PERTAINS TO BONDING COMPONENTS TO THE CIRCUIT BOARD.						

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SYS ITEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	27C4974.1 RATE GYRO	UTP-PET 27-04374-3	680224			YES HONEYWELL NO JRS101AS	890199
FAILURE MODE-OUT OF TOLERANCE HALL DEVIATION FOLLOWING TEMP. TEST AND VIBRATION TEST WAS +37 MV AND +41 MV RESPECTIVELY. TEST TOLERANCE IS +15.2 MV TO +32.2 MV. ALSO ON 88-08-23 FOLLOWING LIFE TEST, 24 HOURS, HALL DEVIATION WAS +42 MV. HIGH HALL MAY BE CAUSED BY A SHIFT BETWEEN ROTOR AND STATOR, FOREIGN MATERIAL, HANDLING OR DEGRADATION OF ADJUST RESISTOR.							
CORRECTIVE ACTION-SPECIAL TEMP. TESTS WERE PERFORMED ON INDIVIDUAL GYRO OF LOT 8 AND THOSE PASSING WERE RELEASED TO PRODUCTION. UPON COMPLETION OF 100 HOURS OF LIFE TESTING DURING PET. REF. CTCTH NO. 931-1-012 1-013							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	41-401-00-303 GYRO-DISPLACEMENT, SHRO	COUNTDOWN	3030 680210	ABRESA-1 YES -1200 NO			890281
FAILURE MODE-FAIL DURING OPERATION. SHRO FALSELY INDICATED A SPIN MOTOR FAIL.							
SYSTEM EFFECT-IMPROPER SIGNAL TO GSE.							
VEHICLE EFFECT-COUNTDOWN DELAYED. A 65 MINUTE HOLD WAS REQUIRED.							
CORRECTIVE ACTION-THE GYRO CAN WAS REPLACED. DISPOSITION OF THE FAILED CAN IS PENDING DUE TO LACK OF FUTURE REQUIREMENT FOR GYRO OF THIS PITCH ATTENUATION FACTOR.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	69C3143.1 DISPLACEMENT GYRO	UTP-PET 7-04250-801	680206		YES REARFOIT NO CTO-8306-001		890200
FAILURE MODE-OUT OF TOLERANCE FOLLOWING 4 DAY CYCLE TEST, FIXED RESTRAINT DRIFT POSITION NO WAS 3.20 DEGREES PER HOUR AND POSITION NO WAS 4.36 DEGREES PER HOUR. TOLERANCE ALLOWED IS PLUS OR MINUS 3.0 DEGREES PER HOUR. MASS UNBALANCE ALONG INPUT AXIS WAS 3.805 DEGREES PER HOUR WHERE ALLOWED TOLERANCE IS PLUS OR MINUS 3.0 DEGREES PER HOUR							
CORRECTIVE ACTION-SPECIAL DRIFT TESTS WERE CONDUCTED ON INDIVIDUAL ITEMS OF PET LOT 8. TEST SPECIMEN RETURNED TO VE HOOK FOR FAILURE ANALYSIS. REF. CTCTH 931-1-010							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-89-04-5114 RATE GYROSCOPE-SHRO	FAR 27-04374-3	680204	FACTORY	YES HONEYWELL NO		
FAILURE MODE-FAIL TO OPERATE. GYROSCOPE WAS REJECTED WHEN THERE WAS NO SHRO OUTPUT. INITIAL TESTS SHOWED AN OPEN CIRCUIT. FAILURE ANALYSIS FOUND A BROKEN SHRO MAGNET AND THE WINDINGS WERE BURNED. FAILURE WAS CAUSED BY APPLICATION OF HIGH VOLTAGE AND CURRENT TO THE SHRO CIRCUIT FROM AN UNKNOWN SOURCE.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM BUS-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-NO CORRECTIVE ACTION CAN BE INITIATED AS THE SOURCE OF THE MISAPPLIED VOLTAGE IS UNKNOWN. TEST PERSONNEL WERE NOTIFIED OF THE RESULTS OF THIS ANALYSIS.						890480
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89C3043 DISPLACEMENT GYRO	UTP-PET 7-04250-801	840201	60/C	YES	REARFOIT NO C70-2508-001	890287
FAILURE MODE-OUT OF TOLERANCE-MASS UNBALANCE ALONG THE INPUT AXIS WAS OUT OF TOLERANCE AT 3.235 DEGREES PER HOUR DURING THE INITIAL SATISFACTORY PERFORMANCE TEST. MAXIMUM ALLOWABLE IS 3.0 DEGREES PER HOUR.							
CORRECTIVE ACTION-REPEAT OF MASS UNBALANCE TEST UTILIZING RECEIVING INSPECTION EQUIPMENT INSTEAD OF ELECTRICAL TEST LAB EQUIPMENT RESULTED IN FAILURE ON 2-8-66 OF SAME PART. SPECIAL DRIFT TESTS WERE CONDUCTED ON INDIVIDUAL ITEMS OF PET LOT 9. TEST SPECIMEN RETURNED TO VENDOR FOR FAILURE ANALYSIS. REF. CTCTH 551-1-010.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-5097 SRRD MODULE TRANSISTOR	FAR 27-43186-801	840131	FACTORY	YES	60/C NO	890494
FAILURE MODE-FAIL TO CEASE OPERATION. THE SPIN-MOTOR ROTATION-DETECTOR (84400) WAS REJECTED WHEN IT GAVE A 60 INDICATION WHEN IT SHOULD HAVE GIVEN A NO-60 INDICATION. TRANSISTOR 8-4 (28758) WAS FOUND TO HAVE AN OPEN EMITTER CAUSED BY MISAPPLICATION OF TEST VOLTAGE.							
CORRECTIVE ACTION-PRODUCTION PERSONNEL WERE NOTIFIED TO TAKE MORE CARE WHEN CONNECTING MODULES TO THE TEST SET.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	27C4974 RATE GYRO	UTP-PET 27-04574-3	840127	60/C	YES	MONEYWELL NO JRS101A3	890208
FAILURE MODE-OUT OF TOLERANCE. DURING THE INITIAL SATISFACTORY PERFORMANCE TEST THE SPECIMEN FAILED DAMPING RATIO DURING THE HEATER ON CONDITION AT MINUS 30 DEGREES F WITH MEASURED VALUE OF 0.89 WHERE 0.55 TO 0.85 IS REQUIRED. CAUSE IS ATTRIBUTED TO ONE OR BOTH OF TWO PROBLEMS, (1) DAMPING FLUID VISCOSITY IS HIGH (2) TOLERANCE BUILDUP IN TEST EQUIPMENT.							
CORRECTIVE ACTION-VENDOR DID CHECK DAMPING AT MINUS 30 DEGREES F BUT DID NOT RECORD THE READING ON THE DATA SHEET. 60/C QA HAS INSTRUCTED VENDOR TO RECORD THIS READING. QA TO INQUIRE VENDOR MEASUREMENT IS BEING TAKEN AT THE LOWEST GYRO TEMPERATURE. ALSO RECOMMENDED TEST EQUIPMENT TOLERANCES BE REFLECTED ON THE PET DATA SHEET.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-5093 SIGNAL AMPLIFIER-TRANSISTOR	FAR 69-41921-801	840107	FACTORY	YES	60/C NO	
FAILURE MODE-ERRATIC OPERATION- THE GYRO SIGNAL AMPLIFIER WAS REJECTED FOR A NO13V OUTPUT. FAILURE WAS TRACED TO UNMATCHED OUTPUT TRANSISTORS 8-8 AND 8-9. OPERATOR HAD FAILED TO OBSERVE THE 0.08 VOLT D-C DIFFERENTIAL VOLTAGE MAXIMUM AS WHEN THE TRANSISTORS WERE MATCHED AND INSTALLED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PRI OTN	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-3079-F SIGNAL AMPLIFIER TRANSISTOR	FAR 89-41911-3	851118	FACTORY	YES NO		891009
FAILURE MODE-OPEN ELECTRICAL. SUBASSEMBLY TESTS REVEALED THIS AMPLIFIER HAD A DISTORTED OUTPUT. FAILURE IS ATTRIBUTED TO A BURNED BASE LEAD ON ONE OF THE OUTPUT TRANSISTORS. BASE LEAD WAS BURNED WHEN AN EXCESS VOLTAGE WAS APPLIED TO THE BASE OF THE TRANSISTOR. SINCE THE AMPLIFIER CIRCUITRY HAS LIMITING RESISTORS, THIS VOLTAGE HAD TO BE APPLIED DIRECTLY TO THE TRANSISTOR EITHER BEFORE OR AFTER INSTALLATION ON THE CIRCUIT BOARD. THE EXACT TIME OF THE VOLTAGE APPLICATION CANNOT BE LEARNED.							
CORRECTIVE ACTION-NONE. CAUSE NOT KNOWN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	C7-98-04-246 DISPLACEMENT GYRO PACKAGE	FAR 55-41008-885	851117	ETR	YES NO		894083
FAILURE MODE-OUT OF TOLERANCE. UNIT, WHICH CONSISTS OF A MATCHED SET-P/N 33-41008-885 AND 33-41019-803, WAS REJECTED FOR AN ERRONEOUS 24 VDC OUTPUT FROM THE PITCH RATE EMITTER FOLLOWER. FAILURE ATTRIBUTED TO INADVERTENT APPLICATION OF EXCESSIVE VOLTAGE TO THE EMITTER-FOLLOWER OUTPUT.							
CORRECTIVE ACTION-RECOMMENDED ETR TEST PROCEDURES BE REVIEWED FOR POSSIBLE SOURCE OF PROBLEM.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	27C4537 DISPLACEMENT GYRO	UTP-PET 7-04230-801	851109	GD/C	YES NO	YES NEARFOOT NO C708308001	890208
FAILURE MODE-CONTAMINATION STICKION FAILURES DURING INITIAL SATISFACTORY PERFORMANCE TEST WHILE SPECIMEN OPERATING IN W/MS. AND WS POSITIONS. STICKION REPEATED IN WS POSITION ON RERUN TEST ON 22 NOV 1965. STICKION PROBLEMS WERE DUE TO METAL PARTICLES CONTAMINATING FLUID CAUSED BY (A) IMPROPER OUTGASSING OF MOUNT COMPONENTS (B) IMPROPER CLEANING OF BELLONS (C) DEGRADATION OF QUALITY AT VENDORS FACILITY.							
CORRECTIVE ACTION-ENGINEERING REVIEW BOARD NUMBER 519 ON 13 JAN 1966 APPROVED ACTIONS WHICH IMPROVES VENDOR INSPECTION, CLEANING STICKION TESTING, FLUID FLUSH OPERATION, RECORDINGS, AND OVERALL QUALITY CONTROL DURING MANUFACTURE OF AND ASSEMBLY OF GYROS FOR FUTURE PRODUCTION AND FOR REMOVAL OF ALL SUSPECTED CONTAMINATED GYROS RECEIVED SINCE 1 SEP 1965. ASD APPROVED ACTION ON 14 JAN 1966							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-8D-04-3073F DISPLACEMENT GYROSCOPE/SHRD	FAR 87-41008-835	148P 851027	WTR	YES NO	YES NEARFOOT NO	
FAILURE MODE-STRUCTURAL. DURING MISSILE TESTS, NO SPIN MOTOR ROTATION DETECTOR (SHRD) OUTPUT WAS OBTAINED. THE FAILURE WAS CONFIRMED AND RESULTED FROM AN OPEN SHRD FLEXLEAD IN THE PITCH DISPLACEMENT GYROSCOPE. THE SHRD FLEXLEAD FAILED UNDER EXCESSIVE TENSION, RESULTING IN BREAKING OF THE BOLDER BOND BETWEEN THE FLEXLEAD AND THE CLIP. ALTHOUGH CONTAMINATION APPEARED ON THE CLIP AND THE FLEXLEAD, IT IS NOT KNOWN WHETHER THIS HAD ANY EFFECT ON THE FAILURE. CONTAMINATION							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF/OTH	PRI VEHICLE NAME PART NO
MINATION IS BELIEVED DUE TO IMPROPER CLEANING OF THE FLEXLEAD AND A REACTION OF THE SOLDER FLUX WITH THE FLUOROLUBE FLOAT FLUID.					
CORRECTIVE ACTION-NO CORRECTIVE ACTION ON THE FAILED GYROSCOPE ASSEMBLY (P/N 7-04250-3). CORRECTIVE ACTION WAS TAKEN N REGARDING THE CONTAMINATION PROBLEM AND THE BOMKEN FLEXLEAD WHEN AN IMPROVED VERSION OR THE FLEXLEAD WAS INCORPORA TED IN THE 7-04250-801 VERSION OF THE GYROSCOPE. IT IS RECOMMENDED THAT THE AIR FORCE CONSIDER USING THE -801 VERSIO N TO REPLACE THE PRESENT -3 VERSION.					
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	60C/ASUAS-001-47/FC-CO-01-0071-017 COMPOSITE-FACTORY GYRO-AMPLIFIER	7117 651027	FACTORY NO 607C		
FAILURE MODE-OUT OF TOLERANCE ROLL TORQUING GAINES WERE APPROXIMATELY 86 PERCENT BELOW THE EXPECTED VALUES. DUE TO IMPROPER SETUP OF THE AGE ROLL TORQUING POTENTIOMETER.					
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-5075-7 TORQUER AMPLIFIER	FAR 69-41922-821	651022	FACTORY YES NO	
FAILURE MODE-OUT-OF TOLERANCE. THE TORQUER AMPLIFIER FAILURE WAS EVIDENT WHEN THE TEST SET GAVE A NO GO DURING A GU IDANCE TORQUING TEST. A RETEST OF THE AMPLIFIER AT THE SUBASSEMBLY LEVEL INDICATED A LOW OUT OF SPECIFICATION GAIN WITH A GUIDANCE INPUT. FAILURE WAS CONFIRMED. AMPLIFIER EXHIBITED A 3 TO 5 PERCENT INTERMITTENT DECREASE IN GAIN. NO CAUSE FOR THE FAILURE WAS FOUND BECAUSE THE FAILURE WAS LOST BEFORE THE FAULTY COMPONENT COULD BE ISOLATED.					
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT FOUND.					
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-80-04-5074F DISPLACEMENT GYRO	FAR 27-41002-855	148F 651016	WTR	YES REARFOY NO
FAILURE MODE-STRUCTURAL. UNIT FAILED TO OPERATE DURING MISSILE TESTS. NO SPIN MOTOR ROTATION DETECTOR (SARD) OUTPUT WAS OBTAINED. THE GYROSCOPE FAILED WHEN THE ROLL DISPLACEMENT GYROSCOPE MOTOR DID NOT ATTAIN SYNCHRONOUS SPEED. BEA RING FAILURE IN THE GYROSCOPE MOTOR IS DUE TO LUBRICANT DEPLETION WITH A LONG OPERATING TIME APPROACHING RATED LIFE.					
CORRECTIVE ACTION-FAILURE CONFIRMED. NO CORRECTIVE ACTION TAKEN.					

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1968

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBACME

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PR1 OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-5084F CIRCUIT BOARD	PAR 89-41087-1	7111 851012	FACTORY	NO	60/C	893748
FAILURE MODE-ERRATIC OPERATION- UNIT WAS REJECTED DURING FUNCTIONAL TEST FOR OSCILLATION OF PITCH FINE HEATER VOLTA GE. FAILURE NOT CONFIRMED. TWO MONTHS LATER, WHILE INVESTIGATING THIS FAILURE, A CABLING DEFICIENCY WAS DISCOVERED A T THE TEST SETS. CERTAIN WIRES WERE SHORTED TO EACH OTHER AND TO GROUND INTERMITTENTLY.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-5080-F POWER GROUP	PAR 89-41087-1	850925	FACTORY	YES NO		891008
FAILURE MODE-OUT OF TOLERANCE. THIS POWER GROUP WAS REJECTED WHEN ITS NEXT ASSEMBLY GYROSCOPE PACKAGE HAD A LOW GAI N IN THE PITCH CHANNEL. FAILURE WAS NOT CONFIRMED. HOWEVER, A DISCREPANCY WAS FOUND IN THE YAW CHANNEL. CAUSES FOR R EPORTED FAILURE AND DISCREPANCY IN THE YAW CHANNEL WERE NOT FOUND.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	GO/CAGUES-001-45/PC-CO-01-0071-018 COMPOSITE-FACTORY	7118 850923	157	FACTORY	NO		892884
FAILURE MODE-FAIL DURING OPERATION. AT 157 SEC AND 184 SEC CHANNELS 1, 2 AND 8 OF THE SANSOWN RECORDER EXHIBITED UN EXPECTED NEGATIVE RAMP IN RESPONSE TO A NEGATIVE YAW STEERING SIGNAL FROM GUIDANCE. A POSITIVE YAW BIAS FROM THE AG E NORMALLY PREVENTS THIS OCCURRENCE. THIS CONDITION WAS CAUSED BY IMPROPER MULLING OF THE AGE MULLING AMPLIFIER. SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. UNEXPECTED NEGATIVE RAMP OCCURRED AT 157 AND 184 IN RESPONSE TO A NEGATIVE YAW STEERING SIGNAL FROM GUIDANCE.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-THE AGE MULLING AMPLIFIER WAS REPLACED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-5070-F AMPLIFIER	PAR 90-07800-081	850920	FACTORY	YES NO	MAGNETIC CONTR OLS TC7C-1	892833
FAILURE MODE-OUT OF TOLERANCE. TEMPERATURE CONTROL UNIT WAS REJECT WHEN ITS NEXT ASSEMBLY GYROSCOPE PACKAGE HAD AN UNSTABLE HEATER CONTROL IN THE PITCH CHANNEL.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							

15 JUN 1968

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	87C4766 RATE GYRO	UTP-PET 27-04374-5	850920	60/C	YES NO	HONEYWELL JN8101A3	8951597
FAILURE MODE-FAIL DURING OPERATION. DURING THE TEMPERATURE TEST AT 160 DEG F, THE GYRO FAILED TO RESPOND TO 28 VOC TORQUING INPUTS IN PROOF CYCLE C. TORQUER COIL RESISTANCE WAS SATISFACTORY AT APPROXIMATELY 400 OHMS. AFTER 2 1/4 HOURS AT + 135 DEG F TORQUING WAS PERFORMED WITH SATISFACTORY RESULTS. CAUSE UNKNOWN.							
CORRECTIVE ACTION-SIX OTHER GYROS OF THIS TYPE WERE TESTED AND FOUND NOT TO HAVE THIS DISCREPANCY. IT IS FELT THAT THIS WAS AN INDIVIDUAL FAILURE AND NO FURTHER ACTION WILL BE TAKEN UNLESS DICTATED BY THE RESULTS OF HONEYWELLS INVESTIGATION. REF. C1C1TH NO. 331-1-004.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	60C/BKFS-038/A2-601-00-147	FLIGHT	147F 650805	WTR 108	YES NO		8951590
FAILURE MODE-OUT OF EXPECTED TEST VALUE. A HIGHER THAN USUAL AXIAL ACCELERATION AT DECO ASSOCIATED WITH A LIGHT PAY LOAD CREATED A CONDITION OF DIVERGENT SLOSH DURING THE LATTER PORTION OF BOOSTER PHASE.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. BOOSTER ENGINE PITCH MOVEMENTS REACHED A MAXIMUM OF 4.8 DEGREES NEAR TO PEAK. THESE LIMITS ARE CONSIDERED MARGINAL FOR AUTOPILOT STABILITY.							
VEHICLE EFFECT-NONE. VEHICLE MAINTAINED STABILITY. HOWEVER, VEHICLE CONTROL WAS MARGINAL.							
CORRECTIVE ACTION-NONE RECOMMENDED, BECAUSE LIGHT PAYLOAD IS NOT PLANNED TO FLY ON FUTURE SERIES F VEHICLES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	FTAN371/P8B-CO-03-04C8 CIRCUIT BOARD	COMPOSITE-J FACT	131D 650728	348 -40	YES NO		8974350
FAILURE MODE-FAIL DURING OPERATION THE SPIN MOTOR ROTATION DETECTOR (SMRD) OUTPUT DROPPED OUT MOMENTARILY DUE TO 28 VOC TRANSIENTS CAUSED BY ARMING THE PROGRAMMER. THIS CIRCUITRY IS SUSCEPTIBLE TO SMALL 28 VOC TRANSIENTS.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-9D-04-3044P DISPLACEMENT GYRO	PAR 69-4200E-823/89-42 003-1	'109 850727	2-4	YES NO	NEARROTT	
FAILURE MODE-ERRATIC OPERATION. SPIN-MOTOR ROTATION-DETECTOR (SMRD) INDICATIONS WERE ERRATIC. THE FAILURE WAS CONFIRMED AND WAS CAUSED BY DETERIORATED SPIN-MOTOR BEARING RETAINERS IN THE ROLL DISPLACEMENT GYROSCOPE (P/N 7-04230-801, S/N 810-83281). THE EXACT CAUSE OF THE DETERIORATION WAS NOT FOUND.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
						993235
	CORRECTIVE ACTION-NO SPECIFIC CORRECTIVE ACTION DUE TO THIS FAILURE. THE VENDOR HAS CONDUCTED STUDIES AND HAS ADDED A MOTOR PERFORMANCE CHECK AT THE COMPLETION OF THE 8 DAY GYRO RUN-IN TEST AS THE RESULT OF PREVIOUSLY REPORTED FAILURES. (REF-LETTER FROM REARFOOT TO CONVAIR, DATED JUNE 10, 1965).					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-3048F CIRCUIT BOARD	PAR 89-41087-1	850723	FACTORY	YES NO	993373
	FAILURE MODE-ERRATIC OPERATION. DURING NEXT ASSEMBLY GYROSCOPE PACKAGE FUNCTIONAL TESTS, THE PITCH FINE HEATER VOLTAGE WAS OBSERVED OSCILLATING. THE REPORTED FAILURE WAS NOT CONFIRMED. THE FAILURE REPORTED WAS MOST PROBABLY CAUSED BY SOME PROBLEM IN THE NEXT ASSEMBLY GYROSCOPE PACKAGE OR IN THE TEST SET. NO SPECIFIC CAUSE COULD BE FOUND EVEN AFTER AN INVESTIGATION CONDUCTED AT THE REJECTING DEPARTMENT.					
	CORRECTIVE ACTION-FAILURE NOT CONFIRMED. NO CORRECTIVE ACTION.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-3041F DISPLACEMENT GYROSCOPE	ZAR 99-41002-883	850722	FACTORY	YES NO	993020
	FAILURE MODE-OUT OF TOLERANCE-THE GYROSCOPE PACKAGE EXHIBITED HIGH DRIFT IN THE PITCH DISPLACEMENT GYROSCOPE P/N 7-04250-803. S/N 3082739. THE FAILURE WAS CONFIRMED AND IS ATTRIBUTED TO FIXED RESTRAINT DRIFT CAUSED BY DISTORTED FLEA LEADS. THE CAUSE OF THE FLEA LEAD DISTORTION IS NOT PRECISELY KNOWN BUT IT IS BELIEVED TO BE RELATED TO FLUID FLOW DURING GYROSCOPE WARM-UP.					
	CORRECTIVE ACTION-NO CORRECTIVE ACTION.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-3038F RATE GYRO	PAR 89-45043-1	850721	ETR	NO NO	993236
	FAILURE MODE-OUT OF TOLERANCE. THE PITCH RATE IN-PHASE WALL WAS OUT OF TOLERANCE. THE READOUT WAS MINUS 0.002 VOLT WITH THE FOURTH DIGIT UNREADABLE. THE CHECKOUT PROCEDURE CALLS FOR NOT LESS THAN 0.0022. THE FAILURE REPORT WAS NOT CONFIRMED. ALL WALL READINGS WERE WELL WITHIN TOLERANCES. NO CAUSE FOR THE FAILURE INDICATION COULD BE DETERMINED. THE MOST PROBABLE CAUSE IS AN ETR TEST SET MALFUNCTION.					
	CORRECTIVE ACTION-NO CORRECTIVE ACTION. ETR PERSONNEL HAVE BEEN INFORMED OF THE RESULTS OF THIS FAILURE ANALYSIS AND WERE MADE AWARE OF THE POSSIBLE TEST SET MALFUNCTION.					

GENERAL DYNAMICS
CONVAIR DIVISION

19 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-214 DIODE	FAR 55-41002-849	1510 850625	36	YES NO		993441
FAILURE MODE-SHORT. THE GYRO PKG WAS :R/D FOR TRIPPING CIRCUIT BREAKERS. FAILURE ANALYSIS FOUND SHORTED DIODE CR2 O N BOARD 4448 (P/N 27-41382-1). DIODE WAS BURNED AT MOUNTING BOLTS SHORTING DIODE TO HEAT SINK. THIS WAS CAUSED BY IM SULATING NICA WASHER BEING MOUNTED OFF-CENTER AND THE STEEL WASHER WAS NOT FLAT ON ONE SIDE.							
CORRECTIVE ACTION-RECOMMENDED REPLACE NICA WASHERS WITH WASHERS HAVING A CENTER HOLE SIZED TO FIT THE MOUNTING BOLT , BUT SMALL ENOUGH TO PREVENT THE PRESENCE OF AN AIR GAP BETWEEN DIODE CASE, MOUNTING WASHER, AND HEATSINK.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-213 DISPLACEMENT GYRO	FAR 55-41002-849	1510 850625	ETR 36	YES NO	YES KEARFOTT	993440
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. GYRO IR/D FOR FAILURE TO TORQUE. FAILURE WAS CAUSED BY CONTAMINATI ON OF THE FLOTATION FLUID WITH RUBBER CHIPS AND A GLASS CHIP.							
CORRECTIVE ACTION-VENDOR HAS CHANGED INSPECTION PROCEDURE TO CHECK FILLING APPARATUS PRIOR TO FILLING GYROB WITH FL UID.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-5043F SHRD	FAR 27-04374-3	850619	FACTORY	YES NO		993022
FAILURE MODE-ELECTRICAL OPEN-AFTER APPLICATION OF SPIN-MOTOR POWER, A SPIN-MOTOR ROTATION- DETECTOR (SHRD) NO-LO 31 GUAL WAS RECEIVED. THE REPORTED FAILURE WAS CONFIRMED AND WAS CAUSED BY A BURNED OPEN CIRCUITED SHRD WINDING. THE WI NDING WAS BURNED DUE TO EXCESSIVE VOLTAGE APPLICATION AT SOME UNDETERMINED TIME AND PLACE.							
CORRECTIVE ACTION-ON MARCH 1, 1964 A SERIES OF GYRO YE TEST PROCEDURE CHANGES WERE INITIATED, CAUTIONING TEST EGU PHENT OPERATORS ABOUT DAMAGE THAT CAN OCCUR TO JMBL JRCFF COILS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-5040F DISPLACEMENT GYRO	FAR 69-48002-813	850619	FACTORY	YES NO	YES KEARFOTT	993019
FAILURE MODE-ELECTRICAL OPEN-THE GYRO HAD AN INOPERATIVE PITCH FINE HEATER. THE FAILURE WAS CONFIRMED AND WAS DUE T O AN INTENTIONALLY OPEN- CIRCUITING SENSOR ELEMENT SPLICE IN THE PITCH DISPLACEMENT GYRO (P/N 7-04830-801, S/N 5003)							
CORRECTIVE ACTION-NO CORRECTIVE ACTION.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	3LV-99-04-5048P RATE GYROSCOPE.	FAR 27-04374-3	650616	FACTORY	YES	HONEYWELL NO J88101A3
FAILURE MODE-OUT OF TOLERANCE-THE RATE GYROSCOPE CLOCKWISE STOP APPEARED TO BE BELOW THE ALLOWABLE LOWER LIMIT. THE FAILURE WAS NOT CONFIRMED AND NO CAUSE FOR THE FAILURE REPORTED WAS FOUND DURING OR AFTER DISASSEMBLY.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-5038P DISPLACEMENT GYRO	FAR 7-04250-903	650815	FACTORY	YES	KEARFOY NO C70-2508-000
FAILURE MODE-OUT OF TOLERANCE-DURING CHECKOUT OF THE GYROSCOPE PACKAGE, THE GYROSCOPE EXHIBITED A HIGH DRIFT. THE FAILURE WAS CONFIRMED. THE EXACT CAUSE IS NOT KNOWN BUT IT IS BELIEVED THAT THE FAILURE WAS DUE TO DISTORTED FLEXLEAD S CAUSED BY FLUID FLOW DURING GYROSCOPE WARM-UP.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION. SEE FAR LV-98-04-5031F.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-5037P DISPLACEMENT GYRO	FAR 7-04250-903	650807	FACTORY	YES	KEARFOY NO C70-2508-000
FAILURE MODE-OUT OF TOLERANCE-DURING FACTORY TEST THE DRIFT RATE WAS FOUND TO BE OUT-OF-TOLERANCE. THE FAILURE WAS CONFIRMED AND IS ATTRIBUTED TO FIXED RESTRAINT DRIFT CAUSED BY DISTORTED FLEXLEADS. THE CAUSE OF THE FLEXLEAD DISTORTION IS BELIEVED TO BE RELATED TO FLUID FLOW DURING GYROSCOPE WARM-UP.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION. SEE FAR LV-98-04-5031 F.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-90-04-5028P DISPLACEMENT GYRO	FAR 27-31409-3	650524	WTR	NO	KEARFOY NO
FAILURE MODE-ERRATIC OPERATION. THE GYRO PACKAGE EXHIBITED AN INTERMITTENT SPIN-MOTOR ROTATION-DETECTOR (SMD) DROP OUT. COMPLETE FUNCTIONAL AND TEMPERATURE CYCLE TESTS DID NOT CONFIRM THE REPORTED FAILURE. NO DISCREPANCIES WERE FOUND.						
CORRECTIVE ACTION-SINCE THE FAILURE WAS NOT CONFIRMED, NO CORRECTIVE ACTION CAN BE TAKEN.						

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GENERAL DYNAMICS
CONVIAID DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	PIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE OTH	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	50/CZMH3-D18-DA1049-LA-7MO-01-71 COMPOSITE-FRD/DPL 08 GYRO	FRD/DPL 89-42002-003	7108 850320	2-4	YES NO	
FAILURE MODE-FAIL DURING OPERATION. 3PH MOTOR ROTATION DETECTOR INDICATED AN INTERMITTENT GYRO FAULT DURING THE CO UNTOURN.						
SYSTEM EFFECT-ERRATIC OPERATION.						
VEHICLE EFFECT-MOVE.						
CORRECTIVE ACTION-BOTH THE DISPLACEMENT AND REMOTE RATE GYRO GROUPS WERE REPLACED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-5031F DISPLACEMENT GYRO-PITCH	FAR 27-41002-953	850319	ETR	YES NO	YES REARFOIT
FAILURE MODE-OUT OF TOLERANCE-DURING THE FAILURE ANALYSIS OF THE GYRO PACKAGE FOR A REPORTED OUT-OF-TOLERANCE YAW D RIFT OUTPUT. THE PITCH CHANNEL EXHIBITED A HIGH OUT-OF-TOLERANCE DRIFT. THIS WAS CAUSED BY A DISTORTED PHASE-A FLEA EAD IN THE PITCH GYRO P/W 27-04250 -803 B/W 308-2771 BELIEVED TO BE DUE TO FLUID FLOW DURING WARM-UP.						
CORRECTIVE ACTION-ETR PERSONNEL WERE NOTIFIED OF THE RESULTS OF THIS ANALYSIS. NO CORRECTIVE ACTION WILL BE TAKEN B ECAUSE A DESIGN CHANGE INCORPORATING SAFEBLS NEAR THE FLEAHEADS TO PRECLUDE DISTORTION DUE TO FLUID FLOW HAS BEEN IN CORPORATED ON ALL NEW GYRO ASSEMBLIES.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-5031F DISPLACEMENT GYRO-YAW.	FAR 27-41002-953	850319	ETR	YES NO	
FAILURE MODE-OUT OF TOLERANCE-THE YAW DRIFT TEST 034 READING WAS MINUS 0.1878 WHILE THE TOLERANCE IS PLUS OR MINUS 0.0893.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION AS THE FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-5034F DISPLACEMENT GYRO-PITCH	FAR 27-41002-953	850319	ETR	YES NO	
FAILURE MODE-OUT OF TOLERANCE-DURING PITCH DRIFT TEST 078 THE PITCH CHANNEL EXHIBITED A HIGH OUT-OF-TOLERANCE READI NG OF PLUS 0.1888 WHILE ALLOWABLES ARE PLUS OR MINUS 0.0893. THE FAILURE WAS NOT CONFIRMED.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION.						

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	27CA393 RATE GYRO	UTP-PET 27-04574-5	650510	60/C	YES NO L	HONEYWELL JR8101A3	092001
FAILURE MODE-CONTAMINATION. DURING POST IMMERSION TEST PROOF CYCLE C, THE SPIN MOTOR FAILED TO OPERATE WITH 115V, 4 DO CPS APPLIED TO THE SPIN MOTOR WINDINGS. CHECKS OF CABLE HARNESS, CURRENT DRAWN, RESISTANCE OF MOTOR WINDINGS WERE FOUND NORMAL. THIS WAS CAUSED BY FLUID IN GIMBAL DUE TO DEFECTIVE SOLDER SEAL.							
CORRECTIVE ACTION-QA AND DESIGN RETURNED GYRO TO VENDOR FOR FAILURE ANALYSIS. HONEYWELL TO UNDERTAKE-A) GIMBAL TO HAVE VISUAL EXAMINATION BEFORE ASSEMBLY TO SCOPE. B) GREATER DETAILS AND KETCHES DEFINING ACCEPT. WORK INSTRUCTS. TO PROD. OPR. C) LARGER SOLDERING IRON BEING USED IN GIMBAL SOLDERING FOR BETTER SEAL. D) QA ADDED DETAILED VISUAL SOLDERING STANDARDS. (E) INSPECTION OF SOLDER JOINTS UNDER X10 MAGNIFICATION. (F) MASS UNBALANCE TEST.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	27CA393 RATE GYRO	UTP-PET 27-04574-5	650507	60/C	YES NO L	HONEYWELL JR8101A3	092002
FAILURE MODE-OUT OF TOLERANCE. THE DAMPING RATIO WAS BELOW THE TEST LIMITS AT PLUS 160 DEG. F., DAMPING RATIO EQUALS 0.52 (TEST LIMITS EQUALS 0.55 TO 0.95).							
CORRECTIVE ACTION-FAILURE ANALYSIS AT VENDOR WAS CONDUCTED. FLUID WAS FOUND IN GIMBAL. HONEYWELL WILL PERFORM A SPECIAL MASS UNBALANCE TEST TO DETECT THIS PROBLEM IN THE FUTURE. REF. CTCN NO. 551-1-002.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-5023-F CIRCUIT BOARD TRANSISTOR	FAR 27-41550-5	151F 650421	FACTORY	YES NO		094455
FAILURE MODE-ELECTRICAL OPEN. THE LOW-POWER 1 ASSEMBLY FAILED WHEN SW 4 TRIGGERED AT 200 SECS RATHER THAN THE EXPECTED 205 SECONDS. FAILURE WAS TRACED TO TRANSISTOR Q-18 (NAT534) INTERNAL COLLECTOR LEAD WHICH WAS BROKEN. THE JUNCTION LEAD WAS ALSO MELTED. THIS SUGGESTS A HIGH VOLTAGE GREATER THAN 60 VOLTS WAS APPLIED FROM AN EXTERNAL SOURCE.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION WAS TAKEN AS THE ACTUAL CAUSE OF TRANSISTOR FAILURE IS UNKNOWN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AG463-001-37/FC-CO-01-0071-012	COMPOSITE-FACTORY	7112 650420	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE-DURING THE BOOSTER PHASE THE YAW GYRO END-TO-END TORQUING GAIN WAS 50 PERCENT ABOVE NORMAL.							
SYSTEM EFFECT-OPERATION TOO HIGH.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.							

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOFLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE DIF TIME DIF	PRJ OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE. DISCREPANCY COULD NOT BE DUPLICATED AND WAS ACCEPTED BY ENGINEERING.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	GO/C AGURS-001-38/FC-CO-01-00021-00 COMPOSITE-FACTORY 3 GYRO-013PLACEMENT 27-41002-833	252D 830-09	252D 830-09	FACTORY NO	NO	
FAILURE MODE-OUT OF TOLERANCE. PITCH DISPLACEMENT GYRO CLOSED-LOOP TORQUING RESPONSE WAS APPROXIMATELY THREE TIMES SLOWER THAN EXPECTED, RESULTING IN INCOMPLETE GYRO MULLING DURING BIAS EXERCISES. THIS DISCREPANCY WAS CAUSED BY A LOW GAIN AGE MULLING AMPLIFIER.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNAL.						
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED, POST-COMPOSITE TESTING REQUIRED.						
CORRECTIVE ACTION-REPLACED AGE MULLING AMPLIFIER.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89C2694.2 DISPLACEMENT GYRO	UTP-SLT 7-04230-801	850406	GO/C	NO	NEARPORT NO
FAILURE MODE-OUT OF TOLERANCE. FOLLOWING SLT VIBRATION (PITCH AXIS, R/S) DURING PROOF CYCLE A, THE PITCH SIGNAL GAT W WAS OUT OF TOLERANCE. GYRO PACKAGE 89-41002-837. REFER TO FAILURE LOG NUMBER 331-01-001.						
CORRECTIVE ACTION-NO PROBLEM, OUT-OF-TOLERANCE WAS CAUSED BY BUILD-UP OF TEST EQUIPMENT TOLERANCE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89C2694.2 ROLL RATE GYRO SHRD	UTP-SLT 27-04274-3	850406	GO/C	YES	HONEYWELL NO
FAILURE MODE-OPEN-ELECTRICAL. DURING SLT VIBRATION (PITCH AXIS, R/S) SHRD LOGIC GAVE NO-50 DUE TO DAMAGED SHRD PICK OFF IN ROLL RATE GYRO. IN MAIN GYRO PACKAGE 89-41002-837. REFER TO FAILURE LOG NUMBER 331-1-001.						
CORRECTIVE ACTION-DAMAGE DONE TO SHRD PICKOFF IN GYRO HAS BEEN REDUCED THROUGH CORRECTING/REVISING ALL TEST PROCEDURES.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89C2694.2 DISPLACEMENT GYROHEATER	UTP-SLT 7-04230-801	850406	GO/C	YES	NEARPORT NO
FAILURE MODE-OUT OF TOLERANCE. DURING PITCH AXIS R/S VIBRATION ROLL DISPLACEMENT GYRO FINE HEATER VOLTAGE WAS VARYING. MAIN GYRO PACKAGE 89-41002-837, REFER TO FAILURE LOG NUMBER 331-1-001.						
CORRECTIVE ACTION-NOT A PROBLEM, HEATER VOLTAGE VARIATION IS NORMAL FOR PROPORTIONAL HEATER CONTROL.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89C2894.2 DISPLACEMENT GYRO	UTP-3LT 7-04250-801	850406	50/C	YES	REARFOIT NO	898643
FAILURE MODE-OUT OF TOLERANCE. DURING 3LT VIBRATION (PITCH AXIS, R/S) DISPLACEMENT GYROS WERE OUT-OF-SYNC DUE TO VIBRATION ENVIRONMENT (GYRO PACKAGE 89-41002-837). REFER TO FAILURE LOG NUMBER 551-01-001.							
CORRECTIVE ACTION-LOSS OF GYRO SYNC DURING VIBRATION IS NOT A TEST DISCREPANCY, AS GYRO SPECIFICATIONS ALLOW FOR LOSS OF SYNC UNDER VIBRATION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-A9-04-3003-F TWO-RATE GYRO-RESISTOR R-8	FAR 89-43043-1	7112	FACTORY	YES		894482
FAILURE MODE- ELECTRICAL OPEN. THE TWO RATE GYRO PACKAGE WAS IR/D FOR NO OUTPUT. RESISTOR R-8 AND OTHER COMPONENTS FOUND BURNED. PROBABLY CAUSED BY EXTERNAL APPLICATION OF HIGH VOLTAGE.							
CORRECTIVE ACTION-PERSONNEL CAUTIONED ABOUT APPLYING IMPROPER VOLTAGES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-A9-04-3003-F TWO-RATE GYRO-DIODE	FAR 89-43043-1	7112	FACTORY	NO		894006
FAILURE MODE-ELECTRICAL OPEN. THE TWO RATE GYRO PACKAGE WAS IR/D FOR NO OUTPUT. DIODES CR-1 AND CR-2 FOUND BURNED OPEN. CAUSED BY EXTERNAL APPLIED VOLTAGE.							
CORRECTIVE ACTION-PERSONNEL CAUTIONED ABOUT APPLYING WRONG VOLTAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89C2894.2 ROLL RATE GYRO SARD	UTP-3LT 27-04374-9	850316	50/C	YES	HONEYWELL NO	898647
FAILURE MODE-OPEN-ELECTRICAL. DURING 3LT VIBRATION (YAW AXIS, R/S) SARD LOGIC GAVE NO-GO DUE TO DAMAGED SARD PICKOFF P IN ROLL RATE GYRO IN MAIN GYRO PACKAGE 89-41002-837. REFER TO FAILURE LOG NUMBER 556-3-010.							
CORRECTIVE ACTION-DAMAGE DONE TO SARD PICKOFF IN GYRO HAS BEEN REDUCED THROUGH CORRECTING/ REVISING ALL TEST PROCEDURES.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	99C2894.2 DISPLACEMENT GYRO	UTP-SLT 7-04250-801	950316	60/C	YES	REARFOTT	990642
FAILURE MODE-OUT OF TOLERANCE. DURING SLT VIBRATION (YAW AXIS, R/S) DISPLACEMENT GYROS WERE OUT-OF-SYNC DUE TO VIBRATION ENVIRONMENT. GYRO PACKAGE 68-41002-837. REFER TO FAILURE LOG NUMBER 558-3-010.							
CORRECTIVE ACTION-LOSS OF GYRO SYNC DURING VIBRATION IS NOT A TEST DISCREPANCY, AS GYRO SPECIFICATIONS ALLOW FOR LOSS OF SYNC UNDER VIBRATION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	99C2894.2 DISPLACEMENT GYRO	UTP-SLT 7-04250-801	950316	60/C	NO	REARFOTT	990641
FAILURE MODE-OUT OF TOLERANCE. FOLLOWING SLT VIBRATION (YAW AXIS, R/S) DURING PROOF CYCLE A, THE PITCH SIGNAL GAIN WAS OUT-OF-TOLERANCE. GYRO PACKAGE 68-41002-837. REFER TO FAILURE LOG NUMBER 558-3-010.							
CORRECTIVE ACTION-NO PROBLEM, OUT-OF-TOLERANCE WAS CAUSED BY BUILD-UP OF TEST EQUIPMENT TOLERANCES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-3001-7 ELAPSED TIME METER	FAR 95-31900-005	950308	FACTORY	YES	A.W. MAYDON	994005
FAILURE MODE-STRUCTURAL. ELAPSED TIME INDICATOR DID NOT ADVANCE TO INDICATE ABOUT 6 HOURS OF TEST TIME. FAILURE WAS CAUSED BY JAMMED GEARS RESULTING FROM INSUFFICIENT MACHING OF THE EDGE OF THE TENTHS GEAR.							
CORRECTIVE ACTION-SUPPLIER OF GEARS TO INSTITUTE ULTRASONIC TUMBLING TO ELIMINATE BURRS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-194	FAR 95-41002-847	950219	ETR	NO		991192
FAILURE MODE-FAIL DURING OPERATION POWER WAS APPLIED THE APIN MOTOR WOULD NOT RUN. ATTEMPTS TO OBTAIN AN OUTPUT BY TORQUING THE GYROSCOPES REVEALED NO OUTPUT FROM THE SIGNAL AMPLIFIERS. THE FAILURE WAS NOT CONFIRMED. IT IS UNDERSTOOD THAT THE FAILURE OCCURRED WITH A SANDWICH PLUS INSTALLED ON THE MISSILE, AND UPON REMOVAL OF THE SANDWICH PLUS THE PACKAGE OPERATED PROPERLY. NO MEASUREMENT WAS MADE TO DETERMINE IF POWER WAS ACTUALLY APPLIED TO THE PACKAGE. THE MOST PROBABLE CAUSES OF THE FAILURE ARE A FAULTY SANDWICH BOX, A PROCEDURAL ERROR, OR FAULTY MISSILE WIRING.							
CORRECTIVE ACTION-UNKNOWN.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89F3420 HEATER	UTP-SLT 95-41002-935	950216	60/C	YES NO		895989
FAILURE MODE-OUT OF TOLERANCE. DURING ALL AXIS OF SLT (R/S) VIBRATION PITCH AND ROLL FINE HEATER VOLTAGE FLUCTUATED. REFER TO FAILURE LOG 338-3-008.							
CORRECTIVE ACTION-NO REQUIREMENT EXIST FOR STABLE VOLTAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89F3420 DISPLACEMENT GYRO SHRD	UTP-SLT 95-41002-935	950216	60/C	YES NO		895989
FAILURE MODE-OUT OF TOLERANCE. DURING ALL AXIS OF SLT (R/S) VIBRATION 1) SHRD LOGIC HAD NO-60. 2) NOISE SEEN ON PIT CH SHRD. 3) PITCH AND ROLL FINE HEATER VOLTAGE VARIED. REFER TO FAILURE LOG NUMBER 338-3-008.							
CORRECTIVE ACTION-1) DAMAGE DONE TO SHRD PICKOFF HAS BEEN REDUCED BY REVISING TEST PROCEDURES. 2) NOT CONSIDERED A DISCREPANCY SINCE THERE IS NO SPECIFIED NOISE REQUIREMENT AT PACKAGE LEVEL.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4999F DISPLACEMENT GYRO MOTOR	PAR 7-04250-803	1960 950212	FACTORY	YES NO	REARFOOT NO C7U-2506-000	895989
FAILURE MODE-STRUCTURAL. UNIT REJECTED FOR HAVING AN ERRATIC OUTPUT IN THE SLAVING MODE. FAILURE WAS ATTRIBUTED TO FAILURE OF THE LUBRICANT OF THE SPIN MOTOR BEARINGS.							
CORRECTIVE ACTION-NONE. SINCE THIS GYRO WAS MANUFACTURED THE VENDOR CHANGED LUBRICANTS, FOR THIS APPLICATION, TO US E GREASE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4997F RATE GYRO TRANSFORMER	PAR 27-0437A-3	950204	FACTORY	YES NO	HINN-MONEY. NO JRS101AR	895989
FAILURE MODE-SHORT. UNIT REJECTED WHEN THE PRIMARY WINDINGS WERE FOUND SHORTED TO THE CASE.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4983F SIGNAL AMPLIFIER TRANSISTOR	FAR 89-41089-3	7203 850200	FACTORY	NO		895047
FAILURE MODE-ELECTRICAL SHORT. UNIT WAS REJECTED FOR LACK OF OUTPUT. FAILURE WAS ATTRIBUTED TO THE APPLICATION OF EXCESSIVE INPUT VOLTAGE WHICH SHORTED THREE TRANSISTORS.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE CAUTIONED ON APPLICATION OF EXCESSIVE INPUT VOLTAGES.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	89CE894.2 DISPLACEMENT GYRO	UTP-PRT 7-04250-801	850130	50/C	YES	KEARFOTT NO	895840
FAILURE MODE-OPEN-ELECTRICAL. AT COMPLETION OF PRT VIBRATION THE PITCH DISPLACEMENT GYRO FAILED TO RESPOND TO TORQUE INPUTS DUE TO OPEN IN SIGNAL GENERATOR CIRCUIT. A BREAK IN GYRO LEAD WIRE. REFER TO FAILURE LOG NUMBER 558-S-007							
CORRECTIVE ACTION-VENDOR WAS NOTIFIED OF PROBLEM DUE TO POOR WORKMANSHIP. VENDORS CHIEF INSPECTOR AND SHOP FOREMAN CONVEYED INTENT TO DISTRIBUTE COLOR PHOTO OF LEAD WIRE DISCREPANCY AS CORRECTIVE ACTION MEASURE AT KEARFOTT.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4984F DISPLACEMENT GYRO WIRE	FAR 7-04250-803	1980 850119	FACTORY	YES	KEARFOTT NO	895891
FAILURE MODE-OPEN. UNIT REJECTED WHEN THE PHASE A MOTOR LEAD WAS FOUND TO BE OPEN. FAILURE WAS ATTRIBUTED TO A BROKEN PHASE A FLEXLEAD. CAUSE OF THE BROKEN FLEXLEAD WAS NOT DETERMINED. FOUR SIMILAR CASES REPORTED ON FAR SLV-99-04-4983F.-4981F.-4986F.							
CORRECTIVE ACTION-MORE. A DESIGN CHANGE AND IMPROVED INSPECTION PROCEDURES, INCORPORATED SINCE THE MANUFACTURE OF THIS UNIT, HAVE REDUCED THE FREQUENCY OF SUCH FAILURES.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4974F AMPLIFIER RESISTOR	FAR 89-41002-893	7401 850119	WTR	YES		895043
FAILURE MODE-STRUCTURAL. UNIT REJECTED FOR VERY LOW ROLL CHANNEL GAIN. FAILURE WAS CAUSED BY A BROKEN INTERNAL CONNECTION IN A DISPLACEMENT CALIBRATION RESISTOR AS RESULT OF NOT PROVIDING FOR STRESS RELIEF DURING INSTALLATION.							
CORRECTIVE ACTION-SURVEY 19-83 REQUIRED RETROFIT OF ALL GYROSCOPE PACKAGES IN 1980, 1980, 7104 AND 7401 WITH PACKAGES COMPLYING WITH MS 44.10C FOR STRESS RELIEF.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4971P BARD MODULE	FAR 27-43188-3	850114	FACTORY	YES	60/C NO	895037
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED WHEN IT WOULD NOT CALIBRATE. FAILURE ATTRIBUTED TO BUILDUP OF COMPONENT T. TOLERANCES. SEVEN SUCH FAILURES HAVE BEEN REPORTED PREVIOUSLY.							
CORRECTIVE ACTION-ECP 7638, COVERING REDESIGN OF THIS UNIT, WAS CANCELLED BY THE AF. NO FURTHER ACTION TAKEN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4974P EMITTER-FOLLOWER AMPLIFIER	FAR 27-43518-1	7109 850106	FACTORY	YES NO		895042
FAILURE MODE-ELECTRICAL OPEN. UNIT REJECTED FOR PRODUCING A DISTORTED OUTPUT. FAILURE WAS CAUSED BY AN OPEN CIRCUIT AS RESULT OF AN IMPROPERLY SOLDERED CONNECTION.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE CAUTIONED TO ADHERE STRICTLY TO MS 44.11 CONCERNING THE SOLDERING OF TERMINALS TO PRINTED CIRCUITS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4975P HEATER RING WIRING	FAR 7-41817-3	7104 850105	FACTORY	YES NO		895041
FAILURE MODE-SHORT. TWO UNITS REJECTED FOR BEING SHORTED TO GROUND. FAILURE WAS ATTRIBUTED TO BARE SPOTS IN THE WIRE CONTACTING THE RING.							
CORRECTIVE ACTION-NO ACTION TAKEN PENDING DIRECTION FOR THE ADVANCED AUTO PILOT SYSTEM.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4980P BARD LOGIC ASSEMBLY WIRE	FAR 27-43229-3	1960 850105	FACTORY	YES NO	60/C	895045
FAILURE MODE-ELECTRICAL OPEN. UNIT REJECTED WHEN THE TEST SET GAVE A NO-GO DURING NEXT ASSEMBLY TESTS. FAILURE WAS CAUSED BY A DEFECTIVE WELD OF A RIBBON SPLICER.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE APPRISED OF THE FAILURE. STRICT ADHERANCE TO WELDING PROCEDURES WERE STRESSSED.							

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AUTOPLOT-SQUARE-A/B GYRO PACKAGE	273618 DISPLACEMENT GYRO	UTP-PET 7-04230-803	450103	60/C	YES	KEARFOY NO C702506000
FAILURE MODE-OUT OF TOLERANCE. GYRO EXHIBITED STICKION SEVERAL TIMES IN THE W0 TEST POSITION. IN ADDITION, THE MASS UNBALANCE ALONG THE SPIN REFERENCE AXIS WAS SLIGHTLY OUT OF TOLERANCE AT -5.33 DEG/HOUR ON THE FIRST RUN. THE TEST WAS RE-RUN WITH IN-TOLERANCE RESULTS OF -3.33 DEG/HOUR. (THE 18PT/1AT. VALUES WERE -0.42 DEG/HOUR.) CAUSE UNDETERMED.						
CORRECTIVE ACTION-(A) RE-RUN POST PROOF CYCLE C. (B) CONTINUE LIFE TEST. (C) CONDUCT VIBRATION TEST AFTER LIFE TEST PROOF CYCLE. (D) TEAR DOWN GYRO AND CONDUCT ANALYSIS.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4688-P SARD FILTERS	PAR 27-04648-3	64-01-18	FACTORY	YES	ACI NO
FAILURE MODE-OUT OF SPECIFICATION. THREE SPIN-MOTOR ROTATION-DETECTOR FILTERS FAILED TO MEET THE MINIMUM SPECIFICATION OF 3 DB DIFFERENCE BETWEEN 816 AND 725 CPS. THESE FILTERS WERE MANUFACTURED BEFORE THE SPECIFICATION WAS INSTITUTED.						
CORRECTIVE ACTION-A SURVEY WAS MADE TO FIND AND TEST ALL FILTERS WHICH WERE MANUFACTURED BEFORE SEPTEMBER 1962.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4751F SARD TRANSISTOR	PAR 27-43186-3	32F	FACTORY	YES	NO
FAILURE MODE-FAILED DURING OPERATION. SPIN MOTOR ROTATION-DETECTOR (SARD) SUBASSEMBLY 2 WAS REJECTED WHEN IT HAD NO OUTPUT AT 30 VOLTS AND 1633 PULSES PER SECOND. TROUBLE TRACED TO Q3 TRANSISTOR AREA. MODULE DESTROYED DURING FAILURE ANALYSIS. HOWEVER Q3 TRANSISTOR MET ALL OPERATING PARAMETERS. PROBLEM BELIEVED TO BE DUE TO RESISTANCE VALUES THAT DO NOT PROVIDE A POSITIVE TRIGGERING ACTION.						
CORRECTIVE ACTION-NONE. RECOMMENDED CHANGE OF RESISTOR VALUES WAS REJECTED BY THE CUSTOMER.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	27C3991 DISPLACEMENT GYRO	UTP-PET 7-04230-803	641218	60/C	YES	KEARFOY NO C702506000
FAILURE MODE-OUT OF TOLERANCE. GYRO HAD STICKION IN THE W0 POSITION OF STICKION TEST. CONDITION WAS OBSERVED FOR A PERIOD OF APPROXIMATELY 15 MINUTES AT A TIME WHEN THE OUTPUT OF THE GYRO WAS 4.8 VOLTS. THIS TEST WAS RE-RUN THREE TIMES AFTER SUCCESSFULLY PERFORMING THE TEST IN THE W0 POSITION. STICKION DID NOT APPEAR ON THE RE-RUNS.-CAUSE WAS NOT DETERMINED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-TEAM DOWN ANALYSIS OF GYRO AT VENDORS FACILITY AND WITNESSED BY O.P.I. REPRESENTATIVE DID NOT REVEAL ANY DISCREPANT CONDITIONS. NO FURTHER ACTION. LOT 4 ACCEPTED FOR PRODUCTION. REF. CICTH NO. 556-3-004.						892004
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-4965F ELAPSED TIME METER BEAR	FAR 89-31900-020	841216	ETR	YES NO		895494
	FAILURE MODE-STRUCTURAL. THE TWO RATE GYROSCOPE PACKAGE, P/N 89-43045-1, WAS REJECTED DURING A LABORATORY TEST, WHILE THE ELAPSED TIME METER WAS NOTED TO BE INOPERATIVE. FAILURE WAS RESULT OF SLIPPAGE AT A STAKED JOINT IN THE TENTHS DIAL GEARTRAIN.						
	CORRECTIVE ACTION-FAR SLV-98-04-8017 WAS ISSUED, INFORMING THE ELAPSED TIME METER VENDOR OF THE PROBLEM.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-5004 DISPLACEMENT GYRO TRANSFORMER	FAR 89-41002-835	841216	ETR	YES NO		894483
	FAILURE MODE-OUT OF TOLERANCE. DISPLACEMENT GAINS WERE HIGH AND OUT-OF-TOLERANCE. FAILURE CAUSED BY AGING OF EXCITATION TRANSFORMER AND OTHER COMPONENTS.						
	CORRECTIVE ACTION-NONE. PROPOSED CORRECTIVE ACTION WAS CLASSIFIED AS IMPROVEMENT CHANGE ARE THIS TYPE OF CHANGE IS NOT APPROVED FOR PRESENT AUTOPILOT.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-4967F	FAR 89-41002-887	841216	WTR	YES NO		895492
	FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR EXCESSIVE LOW RATE GAIN.						
	CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4972F RATE GYRO BEARING	FAR 87-04574-5	7110 841209	FACTORY	YES NO	MINN.-HONEYWELL JPS101A3	895038
	FAILURE MODE-STRUCTURAL. UNIT REJECTED FOR DRIFTING NULL. PARTIAL DISASSEMBLY REVEALED A PIVOT BEARING WITH AN IMPROPER FIT IN ITS JOURNAL. AS WELL AS ALSO BEING COCKED. THOUGH NOT CONCLUSIVELY PROVEN, THE FAILURE IS ATTRIBUTED TO THE BEARING CONDITION.						
	CORRECTIVE ACTION-NONE. EXACT CAUSE WAS NOT DETERMINED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CAPSULE-089/P6-L0-01-0AC4 SHRD OUTPUT	COUNTDOWN	148D 641204	38A -12000	NO NO	
<p>FAILURE MODE-ERRATIC OPERATION. ATLAS AUTOPILOT SPIN MOTOR ROTATION OUTPUT DETECTION LIGHT INTERMITTANT THROUGH UNB ILICAL PIDOL.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION. INTERMITTANT SHRD OUTPUT INDICATION.</p> <p>VEHICLE EFFECT-COUNTDOWN DELAYED AT T-200 UNDETERMINED AMOUNT OF TIME.</p> <p>CORRECTIVE ACTION-PIDOL WAS PULLED AND CLEANED WITH ALCOHOL AND REINSTALLED. NO FURTHER INTERMITTANT INDICATIONS WERE OBSERVED.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4643F SHRD	FAR 27-04574-3	158D 641203	FACTORY	NO NO	MOONEYHILL NO 27-04574-3
<p>FAILURE MODE-OUT OF TOLERANCE. SHRD NO-GO INDICATION WAS NOTED. PROBABLY CAUSED BY A PARTIALLY DEMAGNETIZED SHRD MAGNET. THE MAGNET CAN BE DEMAGNETIZED BY APPLICATION OF EXTRANEOUS VOLTAGES TO SHRD COIL, DURING CHECKOUT OF THE MAIN GYROSCOPE PACKAGE, ON TEST SETS TET3065.</p> <p>CORRECTIVE ACTION-PER DESIGN MEMO 536-50-193, IN ANSWER TO RAR 9LV-99-04-3963 MAP MOS1007 AND ECP7859 WERE INITIATED TO ADD A SHRD PROTECTION CIRCUIT TO EACH GYROSCOPE. ON MARCH 1, 1964 TEST PROCEDURE CHANGES WERE ADDED WHICH CAUTIONED TEST EQUIPMENT OPERATORS OF DAMAGE THAT CAN OCCUR TO SHRD PICKOFF COILS. THE REJECTION RATE HAS SINCE BEEN REDUCED. THE SHRD CIRCUIT CHANGE IS CONSIDERED ECONOMICALLY UNFEASIBLE. MAP AND ECP WERE WITHDRAWN AUGUST 10, 1964.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4643F SHRD CIRCUIT BOARD	FAR 27-43229-3	641203	FACTORY	YES NO	60/A
<p>FAILURE MODE-ELECTRICAL SHORT. SHRD GO LIGHT FAILED TO ILLUMINATE ON THE CHECK OUT TEST SET. EXPERIENCE INDICATES THAT CAUSE OF FAILURE IS THE APPLICATION OF EXTRANEOUS VOLTAGE TO THE SHRD INPUT. AN INPUT DIODE IN SUBASSEMBLY 1 WAS SHORTED. THE INPUT TRANSISTOR Q-1 HAD A VERY LOW GAIN. THE BASE-EMITTER JUNCTION WAS LEAKY.</p> <p>CORRECTIVE ACTION-AN ANSWER TO RAR 9LV-99-04-3963 WAS RECEIVED OCTOBER 9 1964 STATING THAT MAP MOS1007 AND ECP 7859 WERE INITIATED TO ADD A SHRD PROTECTION CIRCUIT TO EACH GYROSCOPE. ON MARCH 1, 1964 GYROSCOPE PROCEDURE CHANGES WERE INITIATED CAUTIONING TEST EQUIPMENT OPERATORS ABOUT DAMAGE THAT CAN OCCUR TO SHRD PICKOFF COILS. THE PROTECTIVE CIRCUIT CHANGE WAS CONSIDERED ECONOMICALLY UNFEASIBLE. SINCE THE REJECTION RATE HAD BEEN REDUCED BY PROCEDURE CHANGES. THE MAP AND ECP WERE WITHDRAWN AUGUST 10, 1964. REFERENCE DESIGN MEMO 536-50-193.</p>						

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-4959F SMD FILTER	FAR 27-41002-859	841127	ETR	YES NO	YES 6D/C	083083
FAILURE MODE-OUT OF TOLERANCE. SMD DROPOUT WAS CAUSED BY AN IMPROPER SOLDER CONNECTION INSIDE A SMD FILTER.							
CORRECTIVE ACTION-IN ANSWER TO RAR LV-98-04-8014 STATES THAT WEAPONS AND LV MISSILES HAVING CANNISTERS WITH -1 FILTERS ON SMD BOARDS CAN NOT BE REPLACED BY -3 FILTERS WITHOUT AN ECP DRAWING CHANGE. AIR FORCE CHANGE BOARD WILL NOT APPROVE ANY SMD CIRCUITRY CHANGES. ALL SMD BOARDS MADE AFTER APRIL 10, 1962 USED THE 27-04948-3 FILTERS. ALL 27-04948-1 FILTERS WERE THEN REPLACED WITH -3 BECAUSE THE -1 HAD A HIGH FAULTY SOLDER CONNECTION FAILURE RATE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4959F RATE GYRO SPIN MOTOR TRANSFORMER	FAR 69-41002-847	7401 841125	FACTORY	YES NO		083083
FAILURE MODE-STRUCTURAL. WHEN POWER WAS APPLIED, THE CIRCUIT BREAKERS ON THE GROUND POWER SUPPLY TRIPPED. A DEFECTIVE SPIN MOTOR TRANSFORMER CAUSED THE FAILURE. REASON FOR TRANSFORMER FAILURE WAS NOT FOUND, BUT COULD BE RELATED TO A BENT PIN IN A CONNECTOR.							
CORRECTIVE ACTION-THE BENT PIN IN THE TWO-RATE GYROSCOPE PACKAGE WAS REPAIRED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4952F AMPLIFIER TRANSFORMER	FAR 27-04178-1	7116 841125	FACTORY	YES NO	YES OECO NO 7340	083343
FAILURE MODE-SHORT, ELECTRICAL. NO OUTPUT FROM THE AMPLIFIER DUE TO A SHORTED OUTPUT TRANSFORMER. CAUSE NOT KNOWN. ANALYSIS DID NOT REVEAL ANY ABNORMALITIES OF OPERATION OF THE TRANSFORMER.							
CORRECTIVE ACTION-NONE. IF THE ENTIRE AMPLIFIER ASSEMBLY HAD BEEN SENT IN FOR ANALYSIS RATHER THAN JUST THE TRANSFORMER THE FAILURE INDICATION COULD HAVE BEEN PRESERVED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4957F RATE GYROSCOPE	FAR 27-04374-3	7122 841124	FACTORY	YES NO	YES HONEYWELL NO JR3101A3	083084
FAILURE MODE-OUT OF TOLERANCE. HIGH WALL OF 21.7 MV. MAXIMUM ALLOWABLE IS 20 MV. FAILURE IS ATTRIBUTED TO NORMAL COMPONENT AGING.							
CORRECTIVE ACTION-PER AN ADDITION TO THE FAILURE ANALYSIS WAIVER TWX ON JANUARY 18, 1965 THE FUTURE FAILURE ANALYSIS WILL BE WAIVED FOR A HIGH WALL OF 30 MV OR LESS.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI DIP	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-4934F SHRD	FAR 27-41002-939	288D 841123	ETR	YES NO	683068
FAILURE MODE-STRUCTURAL. SHRD NO-GO SIGNAL WAS RECEIVED INDICATING ONE OR MORE GYROS WERE NOT RUNNING AT CORRECT SPEED. FAILURE WAS ATTRIBUTED TO A BROKEN WELD IN SHRD SUB-ASSEMBLY 1. THE OPEN CIRCUIT CAUSED THE FLIP FLOP TO BE INOPERATIVE. THE PROPORTIONAL HEATER MALFUNCTIONED FOR MODE 2. TESTING DID NOT CONFIRM NOR REVEAL ANY DISCREPANCIES.						
CORRECTIVE ACTION-NO ACTION RESULTED FROM THE HEATER MALFUNCTION. TO REDUCE THE NUMBER OF BAD WELDS, A HOLDING FIXTURE WAS MADE FOR TESTING IN LINE WELDS. NEW NOTTING MOLDS FOR THE 27-43185 AND 27-43188 MODULES ARE BEING USED. THE POWER SUPPLY FOR WELDING 0.025 TIMED COPPER WIRE TO NICKEL RIBBON OF IN LINE WELDS WAS DELETED BY HS 43.0788 ON SEPTEMBER 16, 1964. HS43.077 DATED MARCH 16, 1964 CALLS FOR HOURLY CERTIFICATION OF WELD STATIONS AND ELIMINATION OF ST ACK WELDING.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-4941F RATE GYRO SHRD	FAR 27-41002-939	288D 841123	12	NO NO	682633
FAILURE MODE-FAIL DURING OPERATION. SHRD INDICATOR BLINKED ON AND OFF AT A RANDOM RATE. CAUSE WAS A LOW OUTPUT OF THE YAW RATE GYROSCOPE. THIS WAS DUE TO A PARTIALLY DEMAGNETIZED SHRD MAGNET. DEMAGNETIZATION RESULTED FROM VOLTAGE APPLIED TO SHRD WINDINGS. SOURCE OF VOLTAGE UNKNOWN BUT THOUGHT TO BE ETR.						
CORRECTIVE ACTION-SINCE CERTAIN TEST PROCEDURES WERE MADE IN MARCH 1964 THE REJECTIONS IN THIS MODE HAD BEEN REDUCED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-A9-04-4942F RATE GYRO BEARINGS	FAR 89-43045-1	7108 841118	FACTORY	YES NO	682633
FAILURE MODE-FAIL DURING OPERATION. SHRD CIRCUIT HAD NO OUTPUT. FAILURE IS ATTRIBUTED TO THE RATE GYROSCOPE MOTOR BEARINGS FAILING. COULD HAVE BEEN CAUSED BY IMPROPER PRE-SET OF BEARINGS OR IMPROPER BEARING LUBRICATION. BEARINGS COULD HAVE BEEN CONTAMINATED. THIS UNIT IS THREE YEARS OLD.						
CORRECTIVE ACTION-PER FAR SLV-A9-04-3997 THE VENDOR WAS INFORMED OF THIS FAILURE AS IT INDICATES A POTENTIAL PROBLEM AREA.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CI-98-04-187 SHRD	FAR 27-43188-3	841117	FACTORY	YES NO	
FAILURE MODE-OUT OF TOLERANCE. DURING TESTS PER VUPMENT OPERATING PROCEDURE 330-403 CONDUCTED ON A NEXT ASSEMBLY. THE SPIN-MOTOR ROTATION-DETECTOR (SHRD) SUB-ASSEMBLY 2 COULD NOT BE CALIBRATED. FAILURE ANALYSIS COULD NOT CONFIRM THE FAILURE. NO CAUSE FOR THE FAILURE COULD BE FOUND.						

GENERAL VIBRATION
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME CIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							991193
	CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	60/AA6U83-001-87/FC-CO-01-0071-007 SHRD	COMPOSITE-FACTORY	7107 641116		NO NO		999920
FAILURE MODE-FAILED DURING OPERATION. TELLENTRY MEASUREMENT 8984X INDICATED A NO-60 SHRD AT POWER CHANGEOVER (INTER MAL AND EXTERNAL). GROUND AC POWER SUPPLY PHASING HAD BEEN REVERSED.							
SYSTEM EFFECT-OPERATION DOESN START.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED.							
CORRECTIVE ACTION- CORRECTED AC GROUND POWER SUPPLY PHASING.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	69F342D SHRD	UTP-PRT 55-41002-835	641116	60/C	YES NO	60/C	999839
FAILURE MODE-FAILURE DURING OPERATION. DURING TAN AXIS VIBRATION (8/3) AND PROOF CYCLE A, SHRD LOGIC CIRCUIT INTERN ITANT AND INDICATED NO-GO. GYROB WERE CONFIRMED TO BE AT SYNC SPEED. REFER TO FAILURE LOG NUMBER 558-5-002.							
CORRECTIVE ACTION-NOT A FLIGHT PROBLEM. CAUSE UNKNOWN, TYPE OF PROBLEM HAS OCCURRED MANY TIMES BEFORE ON CENTAUR BO OSTER PACKAGES.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4945F INDUCTION CHOKE	FAR 86-66900-010	641112	FACTORY	YES NO	DATA FILTER DF208-7.5	991441
FAILURE MODE-STRUCTURAL. THREE UNITS FROM STOCK HAD LOW INDICANCE. VALUE EXPECTED WAS 7.5 HENRIES PLUS OR MINUS 1 PERCENT. CAUSED BY TOP OLD CORES BEING BROKEN. CAUSE OF BREAKAGE NOT KNOWN.							
CORRECTIVE ACTION-BAR SLV-99-04-3989 WAS WRITTEN TO INFORM VENDOR OF THESE FAILURES.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	69F342D DISPLACEMENT GYROB	UTP-PRT 7-04250-801	641105	60/C	YES NO	KEARFOTT	
FAILURE MODE-OUT OF SPECIFICATION ON TOLERANCE-DURING PROOF CYCLE B THE SHRD OUTPUTS FROM PITCH AND ROLL DISPLACEME NT GYROB HAD OUT-OF-TOLERANCE NOISE LEVELS. THIS FAILURE OCCURRED DURING PRT ON 55-41002-835. REFER TO FAILURE LOG N UMBER 558-6-001.							

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-NOISE LEVELS ON SMD OUTPUTS NOT CONSIDERED A DISCREPANCY BY DESIGN GROUP AS THERE IS NO SPECIFIC ACTION FOR INDIVIDUAL GYRO SMD OUTPUTS AT THE GYRO PACKAGE LEVEL. NO FURTHER ACTION REQUIRED.						099840
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	09F3420 DISPLACEMENT GYRO PACKAGE	UTP-PRT 55-41002-035	641105	60/C	YES NO	YES 60/C	099936
FAILURE MODE-OUT OF TOLERANCE. AVERAGE ROLL DISPLACEMENT SENSITIVITY WAS 1.32 VOLTS/DEGREE WHICH IS OUT-OF-TOLERANCE BY 0.03 VOLTS/DEGREE. REFER TO FAILURE LOG NUMBER 556-8-001.							
CORRECTIVE ACTION-ROLL DISPLACEMENT DISCREPANCY COULD NOT BE CONFIRMED OR CAUSE FOUND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	30F 90W 1 30039/E1-040-01-111 DISPLACEMENT GYRO	COMPOSITE-PRD/DPL 641103	111F	E	YES NO	YES	094940
FAILURE MODE-ERRATIC OPERATION-UNUSUAL ENGINE MOVEMENT COINCIDENT WITH ABORT START.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. RESULTING FROM ERRATIC PITCH AND ROLL DISPLACEMENT GYRO SIGNALS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4934F SMD	FAR 27-43185-3	204D 641030	FACTORY	YES NO	YES 60C	092640
FAILURE MODE-OUT OF SPECIFICATION. DISTORTED SINEWAVE AT SMD FILTER OUTPUT. CAUSE NOT KNOWN. ANALYSIS COULD NOT DUPLICATE THIS FAILURE.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE NOTIFIED OF THE ANALYSIS RESULTS AND CAUTIONED AGAINST ERRONEOUS REJECTION. IT WOULD HAVE BEEN BETTER IF THE ENTIRE CIRCUIT ASSEMBLY HAD BEEN REJECTED RATHER THAN AN INDIVIDUAL SUB ASSEMBLY.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4936F DISPLACEMENT GYROSCOPE THERMOSTAT	FAR 7-04250-801	69-7203 641028	FACTORY	YES NO	YES REARFOTT NO C702508001	
FAILURE MODE-OPEN, ELECTRICAL. COARSE HEATER CIRCUIT WAS OPEN CIRCUITED DUE TO AN OPEN-CIRCUITED HEATER THERMOSTAT. THE THERMOSTAT CENTER HOLD DOWN SCREW HAD APPARENTLY BACKED OFF SLIGHTLY CAUSING THERMOSTAT TO OPEN AND STAY THERE.							
CORRECTIVE ACTION-RAR SLV-99-04-3990 ADVISED VENDOR OF THE RESULTS OF THIS ANALYSIS. REARFOTT WAS REQUESTED TO TAKE							

SENA DYNAMICS
CONVAIN DIVISION

18 JUN 1988

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	YITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ACTION TO ASSURE THAT HOLD DOWN SCREW REMAINS TIGHT.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-49337 SARD	FAR 27-43188-3	2230 841027	FACTORY	YES	60C NO
FAILURE MODE-OUT OF TOLERANCE. DISTORTED SIGNAL AT THE CALIBRATION RESISTOR. CAUSE NOT KNOWN. FAILURE IS ATTRIBUTED TO BUILDUP OF COMPONENT TOLERANCES, PARTICULARLY THE HIGH GAINS OF TRANSISTORS 8-3 AND 8-4.						
CORRECTIVE ACTION-TEMPORARY CHANGE AUTHORIZATION 9 TO PROCEDURE EOP 330.487 OF AUGUST 25, 1984 REQUIRES MORE EXTENSIVE TESTING OF THIS UNIT BEFORE AND AFTER ENCAPSULATION. THIS ALLOWS COMPENSATION FOR COMPONENT TOLERANCE BUILD UPS BEFORE UNIT IS POTTED. THIS FAILED ASSEMBLY PROBABLY WAS BUILT PRIOR TO TCA-3.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-49287 SARD MODULE CAPACITOR	FAR 27-43188-3	841012	FACTORY	YES	60/A NO
FAILURE MODE-SHORT, ELECTRICAL. SARD GAVE A NO-60 INDICATION. FAILURE IS ATTRIBUTED TO CAPACITOR C-3 SHORT CIRCUITING. REASON FOR SHORT IS NOT KNOWN.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-49077	FAR 27-41002-938	2890 841012	ETR	NO	NO
FAILURE MODE-OUT OF TOLERANCE. AUTOPILOT GYROSCOPE PACKAGE HAD A LOW ROLL SLAVING. AFTER TWO HOUR WARMUP THE 4 VOLT ROLL SLAVING CAME WITHIN SPECIFICATIONS. FAILURE IS ATTRIBUTED TO A SLIGHT DIFFERENCE IN TEST SETS AND TO CALIBRATION 4 VOLT ROLL SLAVING ON THE LOW END OF TOLERANCE.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-49277 DISPLACEMENT GYROSCOPE	FAR 7-04230-801	841008	FACTORY	YES	REARFOTT NO C702308001
FAILURE MODE-OUT OF TOLERANCE. RESTRICTED SIGNAL MOVEMENT FROM STOP TO STOP. CAUSE NOT KNOWN. ELEVEN DISCREPANCIES FOUND DURING ANALYSIS ARE A BARE LEAD, FLUID LEAK, SEVERAL STRANDS OF A LEAD WERE BROKEN, A BRISTLE WAS FOUND IN THE SIGNAL STOP SLOT, FLUID/LEAK HAD SEEPED INTO THE PIVOT MOUNTING THREADS ON THE MOTOR LEAD OF THE GYROSCOPE, RESIN WAS ON SARD TERMINAL OF THE FLOAT HOUSING AND ON INSIDE OF FLOAT, SARD COIL IMPROPERLY SOLDERED, STEEL CHIPS ON SARD MAGNET, CAP SIDE OF HYSTERESIS RING HAD A RAISED ARC SPOT AND BEARING 8 HAD SEVERAL BROWN PHENOLIC PARTICLES IN THE ASSEMBLY. PROBABLE CAUSE OF FAILURE WAS THE BRISTLE.						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPLOTT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME ZIP	PRI OTH	VENDOR NAME VENDOR PART NO
	CORRECTIVE ACTION-REARFOIT STUDIED STROSCOP ASSEMBLY METHOD AND TOOK CORRECTIVE ACTION WHERE EVER NECESSARY TO IMPROVE QUALITY CONTROL AND INSPECTION.					
AUTOPLOTT-SQUARE-A/B STRO PACKAGE	LV-99-04-48097 3480	FAR 55-41018-3	641008	FACTORY	NO	60/C
	FAILURE MODE-FAIL DURING OPERATION. SPIN MOTOR ROTATION DETECTOR OUTPUT OF THE PITCH RATE STROSCOP WAS MISSING. THE C WINDING HAD BEEN DAMAGED PROBABLY BY AN EXTERNALLY APPLIED VOLTAGE. SOURCE OF THIS VOLTAGE WAS NOT FOUND.					
	CORRECTIVE ACTION-MEMO 556-50-193 OF OCTOBER 1, 1964 IN ANSWER TO RAN 3LV-99-04-3863 STATED THAT A MAP AND ECP HAD BEEN PREPARED AS A SOLUTION TO THIS PROBLEM BUT WERE WITHDRAWN BEFORE SUBMITTAL BECAUSE REJECTIONS IN THIS MODE HAD BEEN REDUCED.					
AUTOPLOTT-SQUARE-A/B STRO PACKAGE	LV-99-04-48307 DISPLACEMENT STROSCOP HEATER	FAR 7-04250-603	641008	FACTORY	YES	REARFOIT NO C702506000
	FAILURE MODE-FAIL DURING OPERATION. STROSCOP HEATER MALFUNCTION. FAILURE IS ATTRIBUTED TO A LOOSE CONNECTION TO P1 IN 3.					
	CORRECTIVE ACTION-NONE.					
AUTOPLOTT-SQUARE-A/B STRO PACKAGE	FTAB88/PS-4-0-02-299 SYNCHRO DISPLACEMENT	COMPOSITE-J FACT	2890 640923	13 2	YES NO	
	FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE NON LINEAR ROLL DISPLACEMENT STRO TORQUING OCCURRED DURING THE ROLL PROGRAM BOTH IN THE PLUS COUNT AND THE MINUS COUNT GUIDANCE COMMAND TEST DUE TO LOW TORQUING VOLTAGES.					
	SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.					
	VEHICLE EFFECT-NONE. NON-LINEAR RESPONSE OF THE ENGINES OCCURRED.					
	CORRECTIVE ACTION-UNKNOWN.					
AUTOPLOTT-SQUARE-A/B STRO PACKAGE	A-99-04-48817 DISPLACEMENT STROSCOP	FAR 7-04250-603	3010 640922	FACTORY	YES	REARFOIT NO C70-2506-000
	FAILURE MODE-DRIFT. EXCESSIVE DRIFT. CAUSE NOT KNOWN. POSSIBLY CAUSED BY A VOID ENTRAPPED WITHIN THE PHASE-C FLEXIBLE AD Baffle.					

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-90-04-4889-F RATE GYRO 8480	FAR 98-43745-1	640921	FACTORY	NO	60C
FAILURE MODE-OUT OF TOLERANCE. TWO RATE GYRO PKG REJECTED WHEN PITCH RATE GYRO SPIN MOTOR ROTATION DETECTOR (8480) OUTPUT VOLTAGE WAS VERY LOW. TEST ANALYSIS FAILED TO CONFIRM THE REPORTED FAILURE IN THE GYRO PKG SITE PERSONNEL WERE REQUESTED TO INVESTIGATE THE TEST SET AT WTR. THEY FOUND AN INTERMITTENT OPEN CIRCUIT IN TEST TABLE PATCH PANEL. 1 IN THE PITCH RATE 8480 LINE.						
CORRECTIVE ACTION-SITE PERSONNEL REPAIRED THE INTERMITTENT CONNECTION IN THE TEST SET.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-49177 DISPLACEMENT GYRO	FAR 98-41002-937	60-7103	FACTORY	YES	60/A
FAILURE MODE-OUT OF TOLERANCE. PITCH DISPLACEMENT AVERAGE SENSITIVITY WAS LOW. CAUSE NOT KNOWN. FAILURE IS ATTRIBUTED TO NORMAL COMPONENT AGEING AND HARGSON SPECIFICATION IMPOSED ON THE SYSTEM.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LY-99-04-4903P GYRO CAPACITOR	FAR 27-43188-3	640915	FACTORY	YES	60/C
FAILURE MODE-OUT OF TOLERANCE. MODULE HAD A HALF/WAVE RATHER THAN A FULL/WAVE RECTIFIED SIGNAL. CAUSED BY A MISSED WELD ON THE POSITIVE TERMINAL OF CAPACITOR C-4.						
CORRECTIVE ACTION-ON OCTOBER 12, 1964 FACTORY QUALITY CONTROL WILL UTILIZE W1 POWER MICROSCOPES AND ILLUMINATORS. 7 WERE NEW SIGNIFICANT WELD MACHINES WERE MADE OPERATIONAL.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-90-04-4891-F GYRO PACKAGE	FAR 98-41002-237	640910	FACTORY	YES	NO
FAILURE MODE-OUT OF TOLERANCE. AUTOPILOT GYRO PACKAGE HAD LOW PITCH TORQUEING GAINS. ACCORDING TO EXISTING SPECIFIC ACTIONS, THE PITCH TORQUEING GAINS WAS DUE TO LOW, OUT OF TOLERANCE. HOWEVER, THE SPECIFICATION IS IN ERROR SINCE A NEGATIVE GUIDANCE INPUT IS ACTUALLY USED INSTEAD OF A POSITIVE ONE. THE SIGNAL SPECIFICATION SHOULD BE 2.48 INSTEAD OF 3.08.						
CORRECTIVE ACTION-ECN 348337 RELEASED ON DATE 640916 REVISED THE EXISTING PARAMETERS DOCUMENT TO REFLECT THE CORRECT						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
Y SPECIFICATION.							891297
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-80-04-4888-F YAW DISPLACEMENT GYRO WIRE	FAR 89-41002-937	840908	FACTORY	YES NO		893786
FAILURE MODE-ELECTRICAL OPEN. A SPIN-MOTOR ROTATION-DETECTOR (SMRD) NO-60 WAS RECORDED IN A/P GYRO PKG. TEST ANALYSIS INDICATED YAW DISPLACEMENT GYRO SPIN MOTOR PHASE A OPEN CIRCUITED. THE CAUSE WAS A BROKEN FLEXLEAD SEPARATED FROM THE MOTOR CLIP DUE TO A FAILED SOLDER JOINT.							
CORRECTIVE ACTION-BAR SLV-80-04-3986 WAS ISSUED ADVISING QUALITY CONTROL IN ASTRONAUTICS TO INCREASE INSPECTION OF THE CLIP-TO-FLEXLEAD SOLDER JOINT AND TO ACCOMPLISH SAMPLE PULL TESTS. THE VENDOR ADVISED THAT ALL SOLDER JOINTS ARE 100 PERCENT INSPECTED UNDER 20 POWER MAGNIFICATION. ALL STOCK WAS RE-INSPECTED AND NO DEFECTS FOUND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-80-04-4888-F SMRD	FAR 89-41002-937	840908	FACTORY	NO NO		893174
FAILURE MODE-FAILED IN OPERATION. THE A/P GYRO PACKAGE REPORTEDLY HAD NO OUTPUT FROM THE ROLL-RATE SPIN-MOTOR POTENTIOMETER DETECTOR (SMRD) TEST TABLE OUTPUT JACK. TEST ANALYSIS SHOWED THE APPROVED METHOD OF MONITORING THIS VOLTAGE WAS NOT DONE. THE APPROVED METHOD IS TO INSTALL A SANDWICH-TYPE BOX AT THE PACKAGE CONNECTORS.							
CORRECTIVE ACTION-MTR PERSONNEL WERE INFORMED AND REQUESTED TO MAKE SURE A SANDWICH-TYPE BOX IS USED WHEN THE ROLL-RATE (SMRD) WAS TO BE MONITORED EXTERNALLY.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AAG-0050/P2-401-00-195 YAW DISPLACEMENT GYRO	COUNTDOWN 27-41002-937	1950 840903	12 -7860	YES NO		899720
FAILURE MODE-OUT OF TOLERANCE. YAW DISPLACEMENT GYRO INDICATED ERRATIC RESPONSE WHEN GYRO WAS TORQUED.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS DUE TO ERRATIC GYRO TORQUING.							
VEHICLE EFFECT-COUNTDOWN DELAYED. UNDETERMINED TIME DURATION BECAUSE PROBLEM OCCURRED DURING HOLD FOR LAUNCHER BOOBS TEST UNIT FAILURE.							
CORRECTIVE ACTION-GYRO PACKAGE REPLACED DURING HOLD. TESTS RESUMED. OPERATION SATISFACTORY.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-28-04-4893-F DISPLACEMENT GYRO	FAR 27-41002-937	1950 840903	FACTORY	YES NO		
FAILURE MODE-ERRATIC OPERATION. THE A/P GYRO PKG. REPORTEDLY FAILED DUE TO YAW DISPLACEMENT GYRO ERRATIC OUTPUT DURING T-2Y TORQUE NG TEST. EXTENSIVE TEST ANALYSIS FOR 2 WEEKS DID NOT CONFIRM THE DISCREPANCY. THE CAUSE OF FAILURE IN INDICATORS COULD HAVE BEEN IN THE MISSILE HARNESS OR ASSOCIATED CIRCUITRY. THIS, HOWEVER, COULD NOT BE CONFIRMED AS THE MISSILE HAD FLOWN.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-NONE.						891549
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4812F 34RD BAND PASS FILTER/CAPACITOR	FAR 27-04949-3	3020 640902	FACTORY	YES NO	YES APPLIED COMPON ENT'S ACI-3024	892652
	FAILURE MODE-STRUCTURAL. BAND PASS FILTER HAD AN EXCESSIVE LOSS. THIS IS ATTRIBUTED TO A BROKEN BOND BETWEEN THE FOIL AND THE LEAD IN THE INPUT CAPACITOR.						
	CORRECTIVE ACTION-PER FAR-LV-99-04-4876 THE VENDOR DID A PULL TEST ON CAPACITORS LEADS. ANY CAPACITOR WITH A POOR BOND WILL BE DETECTED BY A DISSIPATION FACTOR TEST. EFFECTIVE OCTOBER 1963. (THIS FILTER WAS MADE IN JUNE 1963). VENDOR ESTABLISHED COMPLETE RECEIVING INSPECTION RECORDS FOR CAPACITORS WITH PERIODIC REVIEWS FOR DISCREPANT LOTS.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4867-F YAW DISPLACEMENT GYRO	FAR 27-41002-937	640831	FACTORY	YES NO		893686
	FAILURE MODE-FAILED DURING OPERATION. THE A/P GYRO PKG. EXHIBITED A HIGH DRIFT INDICATION IN YAW CHANNEL. 0.0951 VS MAX. ALLOWABLE OF 0.0039. DISASSEMBLY OF YAW GYRO TO FLEX LEAD ASSY REVEALED DISTORTION OF ONE OF THE SPIN-MOTOR FLEX LEADS. EXPERIENCE HAS SHOWN FLEX LEAD DISTORTION IS CAUSED BY DAMPING FLUID FLOW IN THE FLEX HEAD ASSY DURING WAIRUP AND COOLDOWN CYCLES.						
	CORRECTIVE ACTION-RAPPIES WERE INSTALLED AROUND EACH FLEX LEAD. THIS DOES NOT CURE THE PROBLEM, BUT GREATLY LESSENS THE INCIDENCE OF FAILURES.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4893-F 34RD TRANSISTOR	FAR 27-43148-3	640819	FACTORY	YES NO		893797
	FAILURE MODE-OUT OF TOLERANCE. THIS SPIN-MOTOR ROTATION- DETECTOR (34RD) SUBASSY 2 GAVE A NO-GO DURING EOP 330-467 TEST ANALYSIS DID NOT CONFIRM FAILURE WITH MAX TOLERANCE INPUT OF 5.3V ALTHOUGH THE UNIT DID FAIL AT 5.4V INPUT. THE BOXER-LINE CONDITION WAS CAUSED BY LOW GAIN OF 8-3 (8N756) TRANSISTOR ALTHOUGH WITHIN TOLERANCE. TOLERANCE BUILDUP IS RESPONSIBLE FOR THE MARGINAL CONDITION.						
	CORRECTIVE ACTION-AWO TEMPORARILY CHANGED INPUT VOLTAGE TO 8.25 PLUS OR MINUS 0.25 VP-P AND IS ADJUSTED WITH A 10 MC COMB PROBE AND AN OSCILLOSCOPE EXTERNAL TO THE TEST SET. MIN. CALIBRATION RESISTANCE WAS CHANGED FROM 50 TO 45 KILOHMS BY TCA 5 TO EOP 330-467 OF 25 AUG. 1964 THESE CHANGES SHOULD GREATLY REDUCE FAILURES OF THIS TYPE WITHOUT INCURRING THE COST OF SELECTING TRANSISTORS WITH SPECIAL DC BETA CHARACTERISTICS.						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME	BIT DIP	PRI OTH	VENDOR NAME VENDOR PART	NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-90-04-4861-F	PAR 27-72595-803	640819	FACTORY	YES	NO		893336
FAILURE MODE-OUT OF TOLERANCE. IMPROPER MOUNTING OF VAN DISPLACEMENT GYRO OBSERVED. EXTENSIVE ANALYSIS FAILED TO CONFIRM THE REPORTED DISCREPANCY. IT IS LIKELY THAT THE FAILURE MAY HAVE BEEN CAUSED BY SOME DEFECT OUTSIDE THE GYRO PK 6.								
CORRECTIVE ACTION-NONE.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4903F SMDR CAPACITOR	PAR 27-43108-3	150F 640819	FACTORY	YES	NO		893393
FAILURE MODE-OUT OF TOLERANCE. SMDR SUBASSEMBLY 2 GAVE A NO-GO DURING FUNCTIONAL TEST. CAUSED BY A DEFECTIVE WELD BETWEEN A RIBBON AND THE NEGATIVE TERMINAL OF CAPACITOR 64.								
CORRECTIVE ACTION-POWER MICROSCOPES AND ILLUMINATORS. AND NEW SHIPPAN WELD MACHINES ARE NOW BEING UTILIZED.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4978-F 8-3 TRANSISTOR-SMDR MODULE	PAR 27-43108-3	640814	FACTORY	YES	NO		893018
FAILURE MODE-FAILED DURING OPERATION. THESE SPIN-MOTOR ROTATION DETECTOR SMDR MODULES DID NOT FUNCTION UNTIL INPUT VOLTAGE WAS INCREASED ABOVE 5 PLUS OR MINUS 0.3 VOLTS. TEST ANALYSIS ATTRIBUTED THE FAILURE TO A BUILDUP OF COMPONENT TOLERANCES. PREVENTING THE 8-3 TRANSISTORS FROM STARTING THE CIRCUITS TRIGGERING ACTION.								
CORRECTIVE ACTION-INPUT VOLTAGE WAS TEMPORARILY CHANGED TO 5.25 PLUS OR MINUS 0.25 V P-P AND IS ADJUSTED WITH A 10 MEGOHM PROBE AND AN OSCILLOSCOPE EXTERNAL TO THE TEST SET. MINIMUM CALIBRATION RESISTANCE WAS CHANGED FROM 50 TO 45 KILOHMS. THESE CHANGES SHOULD GREATLY REDUCE FAILURES OF THIS TYPE AND THE COST OF SELECTING TRANSISTORS WITH SPECIAL D.C. BETA CHARACTERISTICS.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4878-F 8-3 TRANSISTOR, SMDR	PAR 27-43108-3	640814	FACTORY	YES	NO		893018
FAILURE MODE-FAILED DURING OPERATION. THE SPIN MOTOR ROTATION DETECTOR SMDR FAILED DURING EOP 330.487 PARAS 4.1.1. DUE TO THE LOW GAIN OF 8-3 EN736. THE UNIT GAVE A NO-GO WHEN TESTED WITH A 3.5V P-P 816 CPS REQUIRED INPUT.								
CORRECTIVE ACTION-INPUT VOLTAGE WAS TEMPORARILY CHANGED BY AVO TO 5.25 PLUS OR MINUS 0.25 V P-P AND IS ADJUSTED WITH A 10 MEGOHM PROBE AND AN OSCILLOSCOPE EXTERNAL TO THE TEST SET. MINIMUM CALIBRATION RESISTANCE WAS CHANGED FROM 50 TO 45 KILOHMS. THESE CHANGES SHOULD GREATLY REDUCE FAILURES OF THIS TYPE AND THE COST OF SELECTING TRANSISTORS WITH								

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	DATE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
SPECIAL DC BETA CHARACTERISTICS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-4888-P PTOYC ELECTRICAL CONNECTOR-CANISTE 27-41002-931	FAR	640812	FACTORY	YES NO	
<p>FAILURE MODE-EXTERNAL LEAK. A/P GYRO PKG. EXHIBITED LEAKAGE OF PRESSURIZED GASEOUS NITROGEN IN THE UJ1 CONNECTOR A Y PIN 1. PRESSURE DECAYED FROM 12 PSI TO 8 PSI IN 30 MINUTES. MAX ALLOWABLE IS 9 PSI IN 24 HRS. ANALYSIS DISCLOSED THAT LEAKAGE OF THESE CONNECTORS (PTOYC) IS FAIRLY COMMON, AND ARE REPAIRED DURING PURGE AND LEAK TESTS, USING PLEOBO NO RUBBER CEMENT. SINCE THIS CONNECTOR DID NOT LEAK DURING LEAK AND PURGE TESTS, IT IS UNKNOWN HOW OR WHEN THIS UNIT FAILED.</p> <p>CORRECTIVE ACTION-ANY CONNECTOR LEAKAGE PROBLEM DISCOVERED DURING THE MS-21-13 LEAK AND PURGE TEST WILL BE REPAIRED WITH PLEOBO CEMENT. BECAUSE OF THE LEAKAGE PROBLEM WITH THE UJ1 CONNECTOR, THE PTOYC CONNECTOR, WHICH IS NOT HERMETICALLY SEALED, WILL BE REPLACED WITH A HERMETICALLY SEALED VERSION, P107M, FOR ALL NEW DESIGNS.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	60C/22H44-DB4-DA1019-LA-7W0-03-710 COMPOSITE-FRD/DPL 1 GYRO	69-41002-837	7101 640810	PALC	YES NO	4010020
<p>FAILURE MODE-FAILURE DURING OPERATION. SIGNALY THE SPIN MOTOR TEST OUTPUT, INDICATED A GYRO SPIN MOTOR FAULT PRIOR TO COUNTDOWN START.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-THE RATE AND DISPLACEMENT GYRO CANISTERS WERE REPLACED. SPIN MOTOR OPERATION WAS SIMULATED FOR THE DPL.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-98-04-4877-P ROLL DISPLACEMENT GYRO-BEARING	FAR 69-41002-837/69-43 043-1	640810	FACTORY	YES NO	
<p>FAILURE MODE-FAILED DURING OPERATION. THE GYRO PACKAGE FAILED WHEN IT GAVE A SPIN-MOTOR-ROTATION-DETECTOR (SMRD) NO -60 AND THE TIMER WAS INOPERATIVE. THIS FAILURE WAS ATTRIBUTED TO AN UNRESOLVED SMRD FAILURE AND TO A BEARING FAILURE IN THE ROLL DISPLACEMENT GYRO. CAUSE OF BEARING FAILURE WAS DEPLETION OF THE OIL CONTENT IN THE LUBRICANT AND SMALL CONTAMINANT PARTICLES OF UNKNOWN SOURCE. THE ELAPSED TIME INDICATOR FAILED DUE TO A POOR SOLDER CONNECTION AT MOTOR LEAD.</p> <p>CORRECTIVE ACTION-NONE. SMRD CIRCUITRY FAILURE COULD NOT BE DETERMINED. ELAPSED-TIME INDICATOR IS A MINOR NON-REPEATITIVE FAILURE. BEARING PROBLEM TO BE CONSIDERED IN ENTIRE AUTOPILOT POSSIBLE DESIGN IMPROVEMENT PROGRAM.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DAT. SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4831-F	FAR 27-41002-937	640803	FACTORY	YES NO		990866
FAILURE MODE-OUT OF TOLERANCE. THE GYRO PKG. REPORTEDLY FAILED WHEN AVERAGE DISPLACEMENT GAINS WERE FOUND OUT OF TOLERANCE HIGH. THE FAILURE WAS CONFIRMED AND WAS CAUSED EITHER BY THE TEST SET BEING SLIGHTLY OFF DURING PKG. CALIBRATION AND SELL OFF OR BY CALIBRATION RESISTORS CHANGING VALUE SLIGHTLY BY AGING OR BY A COMBINATION OF BOTH.							
CORRECTIVE ACTION-MODE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4831-F SARD TRANSISTOR 8-4	FAR 27-43186-3	640729	FACTORY	YES NO		994423
FAILURE MODE-ELECTRICAL OPEN. THE (SPIN-MOTOR ROTATION DETECTOR) SARD MODULE FAILED TO CALIBRATE. ANALYSIS SHOWED A N OPEN CIRCUIT BETWEEN THE COLLECTOR LEAD OF TRANSISTOR 8-4 AND THE RIBBON WIRING TO THE LEAD. THE EXACT CAUSE OF BROKEN WELD COULD NOT BE DETERMINED.							
CORRECTIVE ACTION-MODE PERSONNEL WERE SHOWN THE FAILED MODULE. THE MISALIGNED CONDITION OF RIBBONS AND COMPONENT LEADS THAT WERE VISIBLE. BETTER MAGNIFICATION AIDS AIDS WERE TO BE CONSIDERED FOR INSPECTION OF THESE WELDED MODULES.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4844-F	FAR 55-41002-935	640724	FACTORY	YES NO		994204
FAILURE MODE-OUT OF TOLERANCE-A/P GYROSCOPE PKG WAS REJECTED DUE TO EXCESSIVE YAW DISPLACEMENT GAIN MEASURED AFTER A ONE HOUR AND FORTY MINUTE WARM UP. NO FAILURE OF A/P GYROSCOPE PKG. COULD BE CONFIRMED. ANALYSIS DID INDICATE REJECTION WAS DUE TO INADEQUATE WARM UP TIME CALLED OUT IN THE PROCEDURE.							
CORRECTIVE ACTION-TEST PROCEDURE 27-2065N TO BE MODIFIED TO REQUIRE TWO HOURS AND FORTY MINUTES WARMUP. THIS WILL ASSURE DISPLACEMENT GAINS WILL NOT DRIFT BEYOND THE PLUS AND MINUS TWO PERCENT TOLERANCE ALLOWED BECAUSE OF THE THERMAL CHARACTERISTICS OF THE PACKAGE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4876-F FILTER-ELECTRICAL	FAR 27-04948-3	AC1 640717	FACTORY	YES NO	3024	
FAILURE MODE-OUT OF TOLERANCE. THIS FILTER WAS REJECTED WHEN IT HAD AN ATTENUATION OF 18.5 DB AT PEAK RESPONSE. EXACT CAUSE OF FAILURE COULD NOT BE FOUND. HOWEVER, THE PROBABLE CAUSE WAS A POOR BOND BETWEEN ONE CAPACITOR LEAD AND THE CAPACITOR.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-THE VENDOR HAS INITIATED PUL TESTS ON CAPACITOR LEADS. NO OTHER CORRECTIVE ACTION TAKEN.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4832-F SARD	FAR 27-43186-3	840713	FACTORY	YES NO	891293 890830
FAILURE MODE-SHORT (ELECTRICAL). THE SPIN-MOTOR ROTATION DETECTOR (SARD) SUBASSY 2 FAILED. PROCEDURE 330.487 PARAG. 4.1.1. ANALYSIS CONFIRMED THE FAILURE AND IT WAS CAUSED BY A SHORT CRT. BETWEEN THE RIBBON WELDED TO PIN 1 AND THE RIBBON WELDED TO THE BASE OF TRANSISTOR Q-1. AN ERROR WAS MADE IN THE PROCEDURE OF FIXING THE POSITION OF THE RIBBON 2 WITH EPOXY BEFORE POTTING THE SUBASSY.						
CORRECTIVE ACTION-INSPECTION AND MFG. PERSONNEL WERE ADVISED OF THIS PROBLEM AND CAUTIONED TO ALLOW NO MOVEMENT OF (SARD) SUBASSY2. WHILE THE EPOXY CEMENT USED TO HOLD THE RIBBONS IN POSITION, IS CURING.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4833-F SARD SCHMITT TRIGGER CIRCUITRY TRA 27-43186-3 NSISTOR	FAR 27-43186-3	840708	FACTORY	YES NO	893832
FAILURE MODE-FAILED DURING OPERATION. THE SPIN MOTOR ROTATION DETECTOR (SARD) FAILED EOM 330.487 PARAG. 4.1.1. TRA NSISTOR Q-3, 2H758 IN SCHMITT TRIGGER CIRCUIT WAS FOUND TO HAVE A GAIN JUST WITHIN LOWER LIMIT SPECIFIED BY MFG. NO MEVER A VOLTAGE OF 7.07 PEAK TO PEAK WAS REQUIRED TO GENERATE A GO SIGNAL IN THE SUBASSEMBLY. THE SPECIFIED VALVE IS 5.5 PLUS OR MINUS 0.3 V.P.P.						
CORRECTIVE ACTION-NONE.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4839-F TRANSISTOR, INPUT-2N659	FAR 27-43186-3	840828	FACTORY	YES NO	893886
FAILURE MODE-FAILED DURING OPERATION- SPIN-MOTOR ROTATION DETECTOR (SARD) SUBASSEMBLY REPORTEDLY FAILED WHEN NO-OUT PUT WAS OBSERVED. TEST ANALYSIS REVEALED THE UNIT WAS INTERMITTENT IN OPERATION DUE TO AN OPEN CIRCUITING TRANSISTOR LEAD. THE EMITTER LEAD WAS FRACTURED AT A KINK WHERE BENT OVER TO THE POST FOR WELDING.						
CORRECTIVE ACTION-RELIABILITY ACTION REPORT (RAR) SLV-99-04-3943 ASKED THAT TRANSISTOR MANUFACTURER BE ADVISED OF THIS ANALYSIS AND APPROPRIATE ACTION BE INITIATED. NO OTHER ACTION IS CONTEMPLATED AS THIS IS FIRST FAILURE OF THIS TRANSISTOR IN THIS MODE.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4828-F RATE GYROSCOPE/HEATER	FAR 27-04574-3	840828	FACTORY	YES MONEYWELL NO JRI01A2	893886
FAILURE MODE-OPEN ELECTRICAL. HEATER THERMOSTAT STUCK IN OPEN POSITION DURING E.O.P. 330.503, PARA. 4.9. THE 81 NET ALLIC STRIP WAS FOUND MELTED AND INSIDE OF CASE BURNED. PROBABLE CAUSE WAS EITHER MISWIRING OF GYROSCOPE IN THE NEXT ASSY. PMS. OR VOLTAGE MISAPPLICATION.						

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							893354
	CORRECTIVE ACTION-NONE, AS CAUSE OF FAILURE COULD NOT BE PINPOINTED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-4824F SHRD FILTER	FAR 27-41002-933	2160 840823	ETR	YES NO	60/C	893210
	FAILURE MODE-FAILED DURING OPERATION. THE MAIN GYRO CAN WAS REJECTED WHEN THE SHRD LIGHT WENT OUT. THE FAILURE WAS CAUSED BY AN INTERMITTENT SHRD FILTER. THE ACTUAL CAUSE OF THE FILTER FAILURE WAS NOT LEARNED. HOWEVER, AN OPEN CAPACITOR AND AN OPEN INDUCTOR WERE FOUND WHEN THE FILTER WAS DISSECTED. THE FILTER PART NUMBER WAS 27-04948-3.						
	CORRECTIVE ACTION-NONE. THE CAUSE OF THE FAILURE WAS NOT LEARNED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-90-04-4028-F ROLL-DISPLACEMENT GYRO/HEATER	FAR 27-72395-801	640816	FACTORY	YES NO		898116
	FAILURE MODE-OPEN (ELECTRICAL). ROLL DISPLACEMENT GYRO HEATER WOULD NOT FUNCTION. ANALYSIS AND DISSECTION OF GYROSCOPES REVEALED THE GYRO HEATER CIRCUIT WAS OPEN AND WAS ISOLATED TO A SPLICE IN THE SENSOR WINDING. THE SPLICE OPENED ONLY WHEN HEATED. WHEN COOL, IT MADE CONTINUITY. X-RAY ANALYSIS WAS UNSUCCESSFUL IN FURTHER DETERMINING EXACT CAUSE OF THE INTERMITTENT OPEN.						
	CORRECTIVE ACTION-RELIABILITY ACTION REPORT SLV-99-04-3943. REQUESTED ASTRONAUTICS SLV PROGRAM OFFICE RECONSIDER PROPOSED STUDY OF CORRECTIVE ACTION FOR HEATER SENSOR SPLICE PROBLEM. THE PROGRAM OFFICE, ON OCT. 12, 1964, ANSWERED THE ABOVE RECOMMENDATION BY STATING THAT A STUDY OF ENTIRE A/D DESIGN FOR POSSIBLE DESIGN IMPROVEMENTS WAS BEING INITIATED. SUBJECT FAILURES WOULD BE INCLUDED IN THE STUDY.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4818-F DISPLACEMENT GYRO HEATER	FAR 7-41817-2	640812	FACTORY	YES NO		893604
	FAILURE MODE-ERRATIC OPERATION. DURING ASSEMBLY FUNCTIONAL TESTING THE YAW GYRO FINE HEATER FLUCTUATED CAUSING THE GYRO HEATER RING TO BE REJECTED. FAILURE WAS CONFIRMED DURING MALFUNCTION INVESTIGATION BUT WAS LOST WHILE TRYING TO ISOLATE IT. BELIEVED TO HAVE BEEN AN INTERMITTENT INSULATION BREAKDOWN OF THE LAGGED COVERED WIRE.						
	CORRECTIVE ACTION-NONE. CAUSE OF FAILURE COULD NOT BE DETERMINED.						

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AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-78-04-4840-P 3MRD	FAR 7-04230-803	2430 840809	FACTORY	YES NO	KEARFOY C70-2306-000	093149
FAILURE MODE-STRUCTURAL. GYRO REPORTEDLY FAILED WHEN GYROSCOPE PKG. HAD NO SPIN MOTOR ROTATION-DETECTOR OUTPUT. ANALYSIS CONFIRMED THE FAILURE AND WAS ATTRIBUTED TO THE (3MRD) FLEXLEAD COMING OFF ITS MOVABLE TERMINAL POST.							
CORRECTIVE ACTION-MEMO 558-50-183 WAS ISSUED TO OBTAIN THE VENDOR PROPOSAL FOR INCORPORATION OF ADDITIONAL (3MRD) FLEXLEAD CLIP MECHANICAL RESTRAINTS ON FIXED AND MOVABLE (3MRD) TERMINALS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A1-4MO-02-243 3MRD	COMPOSITE-FRD/DPL 27-44534-801	2430 840809	WTR	YES NO		094933
FAILURE MODE-FAILED DURING OPERATION. A 3MRD FAULT INDICATION WAS RECEIVED ON THE LAP PRIOR TO LOOP TEST. THE FAULT INDICATION WAS JUMPED OUT DURING THE TEST.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.							
VEHICLE EFFECT-COUNTDOWN DELAYED.							
CORRECTIVE ACTION-GYRO PACKAGE REPLACED. (TROUBLE SHOOTING INDICATED THE FAULT WAS IN THE 3MRD CIRCUIT.)							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4840F DISPLACEMENT GYRO-3MRD	FAR 7-04230-803	2430 840809	WTR	YES NO	KEARFOY	093209
FAILURE MODE-OPEN (ELECT). THE GYRO WAS REJECTED FOR NO 3MRD OUTPUT. THE 3MRD FLEX LEAD WAS FOUND OFF THE TERMINAL POST.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4819-F DISPLACEMENT GYRO MOTOR	FAR 27-78393-801	3530 840803	FACTORY	YES NO	KEARFOY	093113
FAILURE MODE-OUT OF TOLERANCE. DURING MISSILE CHECKOUT A NO-GO OUTPUT WAS RECEIVED FROM THE SPIN MOTOR ROTATION DETECTOR CIRCUIT. FAILURE WAS DUE TO A FAILURE OF THE YAW GYROSCOPE MOTOR. THE MOTOR BEARING WAS DRY.							
CORRECTIVE ACTION-THIS PROBLEM INCLUDED IN A STUDY OF THE ENTIRE AUTOPILOT SYSTEM FOR A RE-DESIGN.							

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4803-F SMRD TRANSISTOR	FAR 27-43188-3	642804	FACTORY	YES NO		893116
FAILURE MODE-OUT OF TOLERANCE. DURING FACTORY ASSEMBLY TEST THE SMRD HAD NO OUTPUT. FAILURE WAS ATTRIBUTED TO COMPONENT TOLERANCE BUILDUP, PREVENTING A LOW-MAIN TRANSISTOR, 8-3, FROM STARTING THE CIRCUITS TRIGGERING ACTION.							
CORRECTIVE ACTION-THIS PROBLEM IS TO BE ONE OF SEVERAL CONSIDERED FOR IMPROVING THE AUTOPILOT SYSTEM.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4798-F MAGNETIC AMPLIFIER	FAR 80-07800-021	640327	FACTORY	YES NO	MAGNETIC CONTR NO CLS	894234
FAILURE MODE-FAILED DURING OPERATION. DURING FACTORY CHECKOUT THE TEMPERATURE CONTROL UNIT ALLOWED THE YAW GYROSCOPE TO OVERHEAT, BELIEVED TO BE IN OTHER PART OF SYSTEM NOT FORWARDED FOR FAILURE ANALYSIS.							
CORRECTIVE ACTION-FAILURE WAS UNCONFIRMED. CAUSE COULD NOT BE DETERMINED. JOE INSTRUCTIONS EFFECTIVE JUNE 23, 1964 REQUIRES RETEST OF ALL COMPONENTS REJECTED FROM HIGHER ASSEMBLIES TO PREVENT ERRONEOUS REJECTIONS AND SUBSEQUENT LOSS OF FAILURE INFORMATION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4808-F RATE GYRO SMRD	FAR 27-04374-3	2880 640328	FACTORY	NO NO	NO 50/C	193803
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYRO HAD A LOW 25IN MOTOR ROTATION DETECTOR OUTPUT. FAILURE WAS DUE TO A DE MAGNETIZED SMRD MAGNET. THIS IS ATTRIBUTABLE TO EXTRANEOUS VOLTAGES THAT ARE IMPRESSED ON THE SMRD WINDINGS.							
CORRECTIVE ACTION-GYROSCOPE TEST PROCEDURE CHANGES WERE INITIATED, CAUTIONING TEST EQUIPMENT OPERATORS ABOUT DAMAGE THAT CAN OCCUR TO SMRD PICKOFF COILS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4803-F RATE GYRO SIGNAL GENERATOR	FAR 27-04374-3	640322	FACTORY	YES NO	YES MONEYMELL	892811
FAILURE MODE-OPEN (ELECT). DURING NEXT ASSEMBLY ELECTRICAL TESTS THE GYRO HAD AN INTERMITTENT OPEN CIRCUIT IN THE SIGNAL-GENERATOR CIRCUIT. FAILURE COULD NOT BE CONFIRMED DURING FAILURE ANALYSIS.							
CORRECTIVE ACTION-NONE. FAILURE UNCONFIRMED AND CAUSE COULD NOT BE DETERMINED.							

上海人民广播电台

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4808-F RATE GYRO	FAR 27-04574-3	640318	FACTORY	YES	HONEYWELL NO
<p>FAILURE MODE-OUT OF TOLERANCE. DURING CHECKOUT THE MEASURED NULL WAS 27 MILLIVOLTS. SPECIFICATION MAXIMUM LIMITS ARE 20 MILLIVOLTS. FAILURE CAUSE COULD NOT BE DETERMINED. HOWEVER, THE OUT OF TOLERANCE NULL WAS TEMPERATURE SENSITIVE. THE OUTPUT IMPEDANCE OF THE WINDING HAD CHANGED FROM 1808 TO 1812 OHM, AND AN INTERMITTENT PULSATION WAS OBSERVED DURING THE INITIAL PHASES OF THE FAILURE ANALYSIS.</p> <p>CORRECTIVE ACTION-HONEYWELL WAS INFORMED OF THE FAILURE. SINCE CAUSE COULD NOT BE DETERMINED NO OTHER ACTION WAS TAKEN.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AG093-001-12/FC-CO-01-0017-013 GYRO, DISPLACEMENT	COMPOSITE-FACTORY 332D 640312	332D 640312	FACTORY	NO	NO
<p>FAILURE MODE-ERRATIC OPERATION. TELEMETRY RECORDINGS OF THE DISPLACEMENT GYRO INDICATED GYRO TORQUING AND HULLING DURING REVERSE RUN OF THE AGE TEST PROGRAMMER. THIS DISCREPANCY WAS CAUSED BY A DEFECTIVE AGE RELAY (N7433).</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-REPLACED AGE RELAY.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4802-F RATE GYRO	FAR 27-04574-3	190D 640508	FACTORY	YES	HONEYWELL NO
<p>FAILURE MODE-STRUCTURAL. DURING COMPONENT TESTING THE PHASE ANGLE OF THE OUTPUT SIGNAL WAS OBSERVED TO BE 3.9 DEGREES. MAXIMUM ANGLE ALLOWED IS 3.3 DEGREES. ORIGINAL FAILURE COULD NOT BE CONFIRMED. A HIGH NULL VOLTAGE RESULTED FROM THE DISTORTED QUADRILEVER. CAUSE OF THIS DISCREPANCY IS MECHANICAL SHOCK.</p> <p>CORRECTIVE ACTION-NONE. ORIGINAL FAILURE COULD NOT BE CONFIRMED. SOURCE OF SHOCK THAT CAUSED DISTORTED QUADRILEVER ACTION COULD NOT BE DETERMINED.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4830-F GYRO SUBASSEMBLY 2/CIRCUITS	FAR 27-43180-3	640505	FACTORY	YES	NO
<p>FAILURE MODE-OUT OF SPECIFICATION. A NO 50 WAS INDICATED DURING SUBASSEMBLY TESTS. ANALYSIS INDICATED THE SIGNAL AT THE COLLECTOR OF 8-3 (N750) DID NOT CHANGE AS THE MODULE INPUT WAS VARIED. FAILURE WAS ATTRIBUTED TO THE LACK OF A WELD AT THE COLLECTOR OF 8-3.</p>						

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CORRECTIVE ACTION-NO/C INSPECTION INSTITUTED THE PRACTICE OF INSPECTING WELDED MODULE ASSEMBLIES ON A RIBBON BY RIBBON BASIS TO ENSURE GREATER ACCURACY.							893594
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4788-F AMPLIFIER-MAGNETIC	FAR 80-07800-081	2800 840423	FACTORY	YES NO	MAGNETIC CONTR OLB	894230
FAILURE MODE-ELECTRICAL SHORT. DURING SUB-ASSEMBLY VISUAL EXAMINATION THE PROPORTIONAL TEMPERATURE CONTROLLER WAS REJECTED WHEN THE CASE WAS OBSERVED TO BE CRACKED AND BURNED. DIODES CR-3 AND CR-4 (GEIN538), AND DIODE CR-9 (GE IN54P) WERE OPEN CIRCUITED. THREE WINDINGS OF THE MAIN REACTOR WERE FOUND SHORT CIRCUITED AND ONE WINDING WAS FOUND OPEN CIRCUITED. THE CONTROLLER APPARENTLY HAD BEEN SUBJECTED TO A CURRENT OVERLOAD.							
CORRECTIVE ACTION-NONE. CAUSE COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4787C RATE GYRO	FAR 87-04374-5	1460 840422	FACTORY	YES NO	YES MONEYWELL	895591
FAILURE MODE-FAIL DURING OPERATION. REJECTED BECAUSE IT HAD NO OUTPUT FROM THE SIGNAL GENERATOR.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4748C	FAR 87-41330-811	1950 840418	FACTORY	YES NO		892768
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED WHEN THE PITCH HEAT SENSING INDICATOR FAILED TO MAINTAIN 110 V PLUS OR MINUS 15 VAC. FAILURE ANALYSIS WAS CANCELED.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4782-7 DISPLACEMENT GYRO MAGNETIC AMPLIFIER LR	FAR 89-41008-825	840418	WTR	YES NO	YES REARFOOT	
FAILURE MODE-ELECTRICAL SHORT. THE ROLL PROPORTIONAL HEATER REMAINED AT MAXIMUM OUTPUT AFTER THE ROLL STYROSCOPE HAD REACHED OPERATING TEMPERATURE. CAUSE WAS DUE TO A SHORT CIRCUIT BETWEEN WINDINGS IN THE OUTPUT REACTOR OF THE PROPORTIONAL TEMPERATURE CONTROLLER. A TAN DISPLACEMENT GYRO SPIN MOTOR BEARING WAS ALSO FOUND DRY.							
CORRECTIVE ACTION-THE MAGNETIC AMPLIFIER VENDOR WAS NOTIFIED OF THE FAILURE. REARFOOT WAS NOTIFIED OF THE DEPLETION							

19 JUN 1966

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CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
OF THE BEARING LUBRICANT. SOME OF THESE WERE FIRST TIME INSTANCES OF THIS TYPE OF FAILURE ON THESE COMPONENTS.							095330
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	094895-2 RATE GYRO PACKAGE SHRD	UTR-ETT 00-45045-1	040410	GO/C	YES NO		095331
FAILURE MODE-OUT OF TOLERANCE. DURING R/S VIBRATION IN ETT TEST, A LOW SHRD SIGNAL WAS RECEIVED DUE TO A DEMAGNETIZ ET SHRD PICKOFF. REFER TO PFR 234.							
CORRECTIVE ACTION-INADEQUATE APPLICATION OF VOLTAGE RESULTED IN PARTIAL DEMAGNETIZATION OF SHRD MAGNET. NO ACTION REQUIRED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	347-49-04-47347 AMPLIFIER-TRANSISTOR	FAR 00-41002-837	7101 040406	FACTORY	YES GO/C NO		091373
FAILURE MODE-SHORT, ELECTRICAL. UNIT REJECTED FOR NO ROLL-RATE ENITTER FOLLOWER OUTPUT. FAILURE ATTRIBUTED TO A SHD BY CIRCUITED 0-1 TRANSISTOR, CAUSED BY A MANUFACTURING DEFECT.							
CORRECTIVE ACTION-VENDOR INFORMED OF PROBLEM. GO/C WAS ADVISED THE TRANSISTOR WAS ASSEMBLED IN 1960 AND THAT SUBSES SENT PROCESS CHANGES HAVE CORRECTED THE PROBLEM.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	27-32134 RATE GYRO	UTR-RET 27-04374-3	140407	GO/C	YES MINOR. NONE NO L	JR3101A3	095009
FAILURE MODE-OUT OF TOLERANCE. DURING THE POST 250 HOUR LIFE PROOF CYCLE C THE GYRO HAD THE FOLLOWING EXCESSIVE MAL LS-IN-PHASE EQUALS 24.2 MV AND TOTAL EQUALS 30.2 MV. CAUSE IS UNKNOWN, MARGINAL MALL CONDITIONS ARE NORMALLY CAUSED BY GYRO AGING AND IS NOT INDICATIVE OF A GYRO DEFICIENCY.							
CORRECTIVE ACTION-SPECIFICATION CHANGE INCREASING ALLOWABLE TOLERANCE RANGE FOR IN PHASE MALL AND TOTAL MALL REQUIR EMENTS, WILL BE MADE. REF. FR-634-2-292.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4739C SHRD BANDPASS FILTER	FAR 27-04948-3	040406	FACTORY	YES ACI NO ACI-3024		
FAILURE MODE-OUT OF SPECIFICATION. 12 SHRD FILTERS REPORTEDLY FAILED AT THE SDC FACTORY WHEN THEY FAILED TO MEET IN E MINIMUM SPECIFICATION OF 308 DIFFERENCE BETWEEN 725 AND 816 CPS. IT WAS DISCOVERED THAT THESE FILTERS WERE MANUFAC TURED BEFORE THE 308 SPECIFICATION WAS INSTITUTED (SEPTEMBER 1962).							
CORRECTIVE ACTION-A SURVEY WAS INSTITUTED FOR ALL FILTERS MANUFACTURED BEFORE SEPTEMBER 1962. APPROXIMATELY 50 FILT							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
ERS WERE FOUND AND RETESTED.							893330
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4759-F RATE GYRO CANISTER	FAR 27-43043-803	32F 840404	FACTORY	YES	HONEYWELL NO	893332
FAILURE MODE-CONTAMINATION. DURING THE FINAL VEHICLE CHECKOUT THE TWO RATE GYRO GROUP WAS NOTED LEAKING GASEOUS NITROGEN. WITH 8 PSIG APPLIED, LEAKAGE WAS 0.4 PSIG IN 3 MINUTES. LEAKAGE WAS PART THE SEALANT AROUND THE ELAPSED TIME INDICATOR MOUNTED IN ONE END PLATE. LEAKAGE WAS ALSO OBSERVED AT THE OTHER END PLATE SEAL. CONTAMINATION ON THE SEAL SUCH AS POTTING COMPOUND AND METAL PARTICLES WAS THE APPARENT CAUSE OF THE SEAL LEAKAGE.							
CORRECTIVE ACTION-60/C ASSEMBLY PERSONNEL AND INSPECTION ADVISED OF THE CONTAMINATION PROBLEM AND RECOMMENDATIONS WERE MADE TO REVIEW THE CLEANING PROCEDURES OF THE END PLATES BEFORE ASSEMBLY.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4761-F 34RD BAND PASS FILTER	FAR 27-04848-3	840331	FACTORY	YES	APPLIED COMPOUND NO ENT	894239
FAILURE MODE-OUT OF TOLERANCE-DURING FACTORY SUB-ASSEMBLY TESTING THE BAND PASS FILTER GAVE A NO-60 INDICATION.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4756P 34RD CONNECTOR	FAR 27-43185-3	840324	FACTORY	YES	NO	893360
FAILURE MODE-STRUCTURAL. SPIN MOTOR ROTATION DETECTOR SUB-ASSEMBLY 1 WAS REJECTED DUE TO INTERMITTENT OUTPUT DURING 25 VOLT TEST. FAILURE WAS DUE TO PIN 1 BREAKING WHILE BEING PLUGGED INTO TEST ASSEMBLY. CAUSE OF PIN 1 BREAKING COULD NOT BE DETERMINED.							
CORRECTIVE ACTION-NONE. NO ACCURATE CAUSE OF THE FAILURE COULD BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4762P 34RD TRANSISTOR	FAR 27-43185-3	840320	FACTORY	YES	NO	893363
FAILURE MODE-ELECTRICAL OPEN. THE SPIN MOTOR ROTATION DETECTOR SUBASSEMBLY 1 WAS REJECTED WHEN IT HAD NO OUTPUT ON THE CHECKOUT CONSOLE. FAILURE WAS DUE TO A DEFECTIVE TRANSISTOR (4-11). THE INTERNAL BASE LEAD WAS MELTED OPEN. BELIEVED TO BE CAUSED BY AN INADVERTENT APPLICATION OF 115V, 400 CYCLE POWER TO THE 34RD CIRCUIT.							
CORRECTIVE ACTION-60/C ALERTED APPROPRIATE DEPARTMENTS REGARDING THE FAILURE. NO OTHER ACTION WAS TAKEN BECAUSE THE DEFINITE CAUSE COULD NOT BE DETERMINED.							

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CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4735 SMD CONNECTOR	FAR 27-43183-3	640320	FACTORY	YES NO		993576
FAILURE MODE-STRUCTURAL. SPIN MOTOR ROTATION DETECTOR SUB ASSEMBLY 1 WAS REJECTED WHEN IT COULD NOT BE TESTED BECAUSE PIN 2 WAS MISSING FROM THE MODULE. IT WAS BROKEN WHEN IT WAS REMOVED FROM THE CIRCUIT BOARD. THE BREAK WAS AT THE WELD POINT. COULD NOT BE DETERMINED WHETHER IT WAS A POOR WELD OR MISHANDLING.							
CORRECTIVE ACTION-NONE. CAUSE COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4737P TRANSFORMER WIRING	FAR 27-04180-3	640319	FACTORY	YES A.C. ELECTRONIC NO B		991083
FAILURE MODE-OPEN ELECTRICAL. UNIT REJECTED FOR A CRACKED CASE. FAILURE ATTRIBUTED TO AN OPEN CIRCUIT IN THE PRIMARY WINDING. HEAT, CAUSED BY EXCESSIVE CURRENT, APPARENTLY CAUSED THE CASE TO CRACK. CAUSE OF ABOVE WAS NOT DETERMINED.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE WAS NOT DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4780-P RATE GYRO MOTOR	FAR 27-04374-3	640318	FACTORY	YES MONEYWELL NO		993383
FAILURE MODE-CONTAMINATION. GYRO EXHIBITED A SHORT CIRCUITED TORQUE WINDING. THE TORQUE WINDING FEEDTHROUGH TERMINAL, ON THE TORQUE SIDE OF THE MOTOR HOUSING ENDPLATE, WAS FOUND SHORT CIRCUITED TO THE MOTOR HOUSING. THE INSULATION RESISTANCE BROKE DOWN APPARENTLY DUE TO MAGNESIUM IN THE POTTING MATERIAL.							
CORRECTIVE ACTION-NONE. THIS IS THE FIRST FAILURE OF THIS TYPE AND EXACT CAUSE IS NOT KNOWN. GYRO WILL MAINTAIN SURVEILLANCE OF THIS COMPONENT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4732P SMD MODULE-DIODE	FAR 27-43183-3	32P 640317	FACTORY	YES SDC NO		992767
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR NO OUTPUT ACCORDING TO EOP. FAILURE ATTRIBUTED TO TEMPERATURE SENSITIVITY IDENTICAL TO 21 OTHER MODULES PREVIOUSLY REPORTED. THIS PROBLEM INVOLVED THE CR-1 DIODE, WHICH IS NO LONGER USED. TWO SIMILAR CASES REPORTED IN FAR A-99-04-4744P AND -4747P.							
CORRECTIVE ACTION-ECP T488 WAS SUGGESTED TO COVER THIS AND OTHER CHANGES. THE ECP WAS CANCELLED BY THE AP.							

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CONVAIR DIVISION

15 JUN 1988

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI O/M	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	69AZ694.1 DISPLACEMENT GYRO PACKAGE	UTP-SLT 69-41002-813	640316	60/C	YES	60/C NO	696637
FAILURE MODE-STRUCTURAL. SPIN MOTOR TRANSFORMER INSERT WAS LOOSE, ELAPSED TIME INDICATOR DIAL WAS ASSEMBLED, AND POWER GROUP HOUSING (27-43185-3) HAD NAILLINE CRACK IN METAL. REFER TO PFR 164 AND 164A.							
CORRECTIVE ACTION-1) MANUFACTURING PROCESS SPEC 24. 22.1 CALLS FOR USE OF LACTITE AND SURVEY INSTRUCTION 58-65 1330 ED TO ASSURE SCREWS ARE ADEQUATELY SECURED. 2) NO ACTION REQUIRED.3) RETEST USING DUMMY PACKAGE REVEALED NO CRACKS IN METAL.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	69AZ694.1 SMD	UTP-SLT 69-41002-813	640316	60/C	YES	60/C NO	696636
FAILURE MODE-ELECTRICAL OPEN. DURING SLT (R/S) VIBRATION. SMD SIGNAL INDICATED NO-GO AT DIFFERENT FREQUENCIES. SMD SUBASSEMBLY NO.1 HAD POOR SPOT WELD (BROKEN). REFER TO PFR 164 AND 164A.							
CORRECTIVE ACTION-CONTINUE QUALITY CONTROL SURVEILLANCE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	69AZ694.1 SMD	UTP-SLT 69-41002-813	640316	60/C	YES	60/C NO	696635
FAILURE MODE-FAILURE DURING OPERATION DURING SLT (R/S) VIBRATION. SMD SIGNAL INDICATED NO-GO AT DIFFERENT FREQUENCIES. SMD SUBASSEMBLY NO.1, CHANNEL 4 NOT BONDED TO CIRCUIT BOARD (27-43223-3). REFER TO PFR 164 AND 164A.							
CORRECTIVE ACTION-CONTINUE QUALITY CONTROL SURVEILLANCE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-AB-04-4737-P AMPLIFIER-TORQUEING TRANSISTOR	FAR 59-41002-823	1460	FACTORY	YES	NO	695561
FAILURE MODE-OUT OF TOLERANCE. DURING FINAL CHECKOUT THE GYRO ASSEMBLY WAS REJECTED DUE TO NON-LINEARITY OF THE YAW TORQUEING AMPLIFIER. FAILURE WAS DUE TO TRANSISTOR 69 THAT WAS TEMPERATURE SENSITIVE AND HAD A LOW DC GAIN. THE REASON FOR THE TRANSISTOR TEMPERATURE SENSITIVITY AND THE LOW DC GAIN COULD NOT BE DETERMINED.							
CORRECTIVE ACTION-NONE. EXACT CAUSE OF FAILURE COULD NOT BE DETERMINED. 60/C INTENSIFIED SURVEILLANCE OF THIS POTENTIAL PROBLEM AREA TO DETERMINE IF ANY FOLLOW UP ACTION WOULD BE REQUIRED.							

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4720P RATE GYRO	FAR 27-41019-5	1460 640316	FACTORY	YES NO		094066
FAILURE MODE-OUT OF TOLERANCE. THE REMOTE RATE GROUP WAS REJECTED BECAUSE THE ROLL RATE GAIN WAS 16 TO 33 PERCENT BELOW TOLERANCE. THE FAILURE WAS NOT CONFIRMED HOWEVER A SLIGHT OUT OF TOLERANCE CONDITION WAS OBTAINED DURING TESTING.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4743P SHRO SUBASSEMBLY 2	FAR 27-43196-3	640311	FACTORY	YES 60/C NO		092789
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR INABILITY TO CALIBRATE IN ITS NEXT ASSEMBLY. FAILURE ATTRIBUTED TO A WELD FAILURE AT CAPACITOR C-5.							
CORRECTIVE ACTION-MANUFACTURING SPECIFICATIONS WERE REVISED TO INCLUDE NEW PULL-STRENGTH REQUIREMENTS AND TO REQUIRE AN HOURLY WELD QUALITY TEST. THE EOP WAS REVISED TO INCLUDE VERIFICATION OF CORRECT OUTPUT WAVE FORM FROM THE SHRO UNIT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	27-3213A RATE GYRO	UTP-PCY 27-04574-5	640312	60/C	NO MINN. MONEYMEL NO L JRS101A3		092007
FAILURE MODE-OUT OF TOLERANCE. BOTH GYROS FAILED TO MEET THE DAMPING RATIO LIMITS AT -30 DEG P DURING THE POST 100 HOUR LIFE TEST, PROOF CYCLE B. AND ALSO AFTER 150 HOUR LIFE TEST. BOTH GYROS FAILED TO MEET THE DAMPING RATIO LIMITS AT -30 DEG P. DURING POST PROOF CYCLE THIS WAS CAUSED BY BUILD UP OF TEST EQUIPMENT TOLERANCES.							
CORRECTIVE ACTION-TEST PROCEDURE REVISED TO CALL OUT TOLERANCES AND TYPES OF TEST EQUIPMENT TO BE USED WHEN READING DAMPING RATIO LIMITS. REF. PR-654-E-592.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CL-5HO-02-46 GYRO, DISPLACEMENT	COMPOSITE-PRD/DPL	482 640310	60/C C	YES NO		096448
FAILURE MODE-OUT OF TOLERANCE. PITCH DISPLACEMENT GYRO DID NOT NULL.							
SYSTEM EFFECT-OPERATION DOES NOT START.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-UNKNOWN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	P21 OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4787-F SHRO DIODE	FAR 27-43185-3	840309	FACTORY	YES NC		993377
FAILURE MODE-CONTAMINATION. THE SHRO SUB-ASSEMBLY 2 WAS REJECTED WHEN IT FAILED THE DIODE LEAKAGE TEST. FAILURE WAS DUE TO A DECEPIT CR-3 DIODE THAT INCLUDED A SMALL PIECE OF SILICON AND ALUMINUM SANDWICHED BETWEEN THE ALUMINUM AND 3 D CRYSTAL SEMI-CONDUCTORS.							
CORRECTIVE ACTION-PEAR TO CONTINENTAL DEVICES CORPORATION TO INSTITUTE PROCESS CONTROLS TO PREVENT MANUFACTURING P LANS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4787-F SHRO SUBASSEMBLY ONE	FAR 27-43185-3	840305	FACTORY	NO NO	50/C	993942
FAILURE MODE-OUT OF TOLERANCE. TWO MODULES WERE REJECTED FOR NO OUTPUT. THE FAILURES WERE CAUSED BY IMPROPER WAVEFO RM OF THE SHRO TEST SET OUTPUT.							
CORRECTIVE ACTION-WAVEFORM OF THE SHRO TEST SET SIGNAL WAS CORRECTED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4730-F SHRO SUBASSEMBLY ONE	FAR 27-43185-3	840304	FACTORY	YES NO	50/C	993143
FAILURE MODE-OUT OF TOLERANCE. THE MODULE WAS REJECTED FOR NO OUTPUT. THE FAILURE WAS CONFIRMED AND WAS ATTRIBUTED TO TEMPERATURE SENSITIVITY, EXCESSIVE VOLTAGE DROP ACROSS DIODE #31, AND IMPROPER WAVE FORM OF THE TEST SET OUTPUT 3 16MAL.							
CORRECTIVE ACTION-NONE. AN ECP TO CORRECT SHRO PROBLEMS WAS REJECTED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	99CA17A DISPLACEMENT GYRO	UTP-PET 7-04250-801	840302	LD/C	YES NO	REARFOIT C702508001	992005
FAILURE MODE-OUT OF TOLERANCE. DURING THE POST VIBRATION PROOF CYCLE TEST, THE DRIFT DUE TO MAJ3 UNBALANCE ALONG TH E SPIN REFERENCE AXIS WAS MEASURED AS -2.91 DEGREES/HOUR. RERUN RESULTS WERE -2.48 DEG./HR. BOTH RESULTS ARE MORE THA N THE ACCEPTABLE 3.0 DEG./HR. SHIF1 FROM THE 13PT/1AT VALUE OF PLUS 0.56 DEG./HR.-TESTING METHODS AND EQUIPMENT COUL D ACCOUNT FOR ENOUGH ERROR TO CAUSE THIS READING TO BE OUT OF TOLERANCE.							
CORRECTIVE ACTION-50/C AND THE VENDOR (REARFOIT) HAVE CONDUCTED A TEARDOWN ANALYSIS ON THIS GYRO. THE MOTOR BEARING 3 WERE AT A VERY EARLY STAGE OF DETEIORATION. VENDOR CLASSIFIED THIS DETEIORATION AS A RANDOM FAILURE. 50/C HAS RE COMMENCED NEW METHODS OF PROCESSING THE BEARINGS AND THEIR RETAINERS. REF. CTCM NO. 556-5-009.							

GENERAL DYNAMICS
CONVAIN DIVISION

19 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	DATE TIME DIP	PRI OTH	VEHICLE NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4724P SMD SUBASSEMBLY ONE	PAR 27-43183-3	640227	FACTORY	YEA	60/C NO	993643
FAILURE MODE-SHORT, ELECTRICAL. THE SUBASSEMBLY HAD NO OUTPUT AFTER ENCAPSULATION BECAUSE OF A SHORT CIRCUIT BETWEEN LEADS TWO AND THREE. THE RIBBON ATTACHED TO LEAD TWO HAD BEEN BENT PRIOR TO ENCAPSULATION SO THAT IT TOUCHED THE RIBBON ATTACHED TO LEAD 3.							
CORRECTIVE ACTION-A PROTECTIVE SLEEVE WAS ADDED TO THE RIBBON CONNECTING LEAD THREE TO LEAD SIX TO PREVENT SHORTING BETWEEN LEADS TWO AND THREE ON FUTURE HARDWARE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-138P DISPLACEMENT GYRO	PAR 31-41002-421	1350 640227	ETR	NO	60/C NO	992793
FAILURE MODE-OUT OF TOLERANCE. THIS UNIT AND ITS MATCHED RATE GYRO, P/N 33-41018-5, WAS REJECTED FOR LOW OUT-OF-TOLERANCE READINGS. FAILURE WAS ATTRIBUTED TO INSUFFICIENTLY ACCURATE TEST SETS FOR THE ACCURACY REQUIRED OF THE GYROS.							
CORRECTIVE ACTION- REDESIGN OF TEST SET RECOMMENDED TO OBTAIN A U.S. PERCENT ACCURACY AND REDESIGN OF THE GYRO PACKAGE TO PROVIDE HIGHER REPEATABILITY OF BLAVING SENSITIVITY READINGS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	69AZ693.1 SMD	UTP-SLT 99-43043-1	640223	60/C	YES NO		999981
FAILURE MODE-OUT OF TOLERANCE. DURING SLT R/S VIBRATION - TEMP. TEST SMD PRES WAS HIGH DUE TO MECHANICAL RESONANCE BETWEEN 400 - 430 CPS CAUSING MOTION BETWEEN PICK OFF AND SPIN MOTOR THEREBY GENERATING EXTRA PULSES. REFER TO PAR 140.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	69AZ693.1 RATE GYRO PACKAGE	UTP-SLT 99-43043-1	640223	60/C	YES NO		999923
FAILURE MODE-OUT OF TOLERANCE. DURING SLT R/S VIBRATION TEMPERATURE, YAW AND PITCH GYROS HAD EXCESSIVE TOTAL NULLS DURING VIBRATION. REFER TO PAR 140. CAUSED BY ANGULAR VIBRATION CROSS TALK.							
CORRECTIVE ACTION-NONE.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOFLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4717F DISPLACEMENT GYRO	FAR 7-04250-803	640224	FACTORY	YES	KEARFOIT NO C-70-2308-000	994080
FAILURE MODE-DRIFT. THE GYRO WAS REJECTED BECAUSE THE MAIN GYRO PACKAGE HAD HIGH DRIFT DURING TEST. THE FAILURE WAS CONFIRMED IN THE GYRO AND WAS ATTRIBUTED TO A FAILURE OF THE THERMOSTAT CAUSING OVERHEATING AND DAMAGE TO THE GYRO.							
CORRECTIVE ACTION-NONE.							
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4716-F AMPLIFIER/CAPACITOR	FAR 27-72595-3	640221	FACTORY	YES NO		994079
FAILURE MODE-OUT OF TOLERANCE. THE MAIN GYRO CANISTER WAS REJECTED FOR LOW AND DISTORTED ROLL RATE OUTPUT. THE FAILURE WAS CAUSED BY A DEFECTIVE CAPACITOR CB IN THE ROLL SIGNAL AMPLIFIER, PART NUMBER 27-41379-817. THE CAPACITOR, A 15 MICROFARAD 20 VOLT CAPACITOR, WAS INTERMITTENT. DISSECTION OF THE CAPACITOR REVEALED NO SILVER ON THE ANODE, A MANUFACTURING DEFECT.							
CORRECTIVE ACTION-NONE. PRESENT PRACTICE IS TO INSPECT THIS TYPE CAPACITOR IN RECEIVING INSPECTION USING VIDICON X-RAY-TELEVISION DEVICE.							
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4693-F CIRCUIT BOARD WIRING	FAR 27-72595-3	3500 640221	FACTORY	YES NO		994027
FAILURE MODE-OPEN (ELECT). THE GYROSCOPE PACKAGE WAS REJECTED DURING SYSTEM TESTS WHEN THE YAW COURSE HEATER MONITOR LIGHT EXTINGUISHED. ANALYSIS ATTRIBUTED THE FAILURE TO A BROKEN CONNECTION AT THE DISPLACEMENT GROUP TERMINAL BOARD D. THE BROKEN CONNECTION WAS THE RESULT OF WICKING OF THE STRANDED CONNECTING WIRE.							
CORRECTIVE ACTION-ALL PRODUCTION SOLDERERS HAVE BEEN CERTIFIED BY A NASA-APPROVED SOLDERING SCHOOL SINCE THIS TERMINAL BOARD WAS ASSEMBLED.							
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	22H44-008/DA1003/L3-4NO-02-893 ROLL RATE GYRO SPIN MOTOR	COMPOSITE-PRD/DPL 2430 640220 27-72595-003	2430 640220	S-3	YES NO		
FAILURE MODE-FAIL DURING OPERATION. THE GYRO SPIN MOTOR ROTATION DETECTOR INDICATED A MALFUNCTION PRIOR TO FUEL LOW START.							
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. ROLL RATE GYRO SPIN MOTOR FAILED.							
VEHICLE EFFECT-COMPOSITE DELAYED.							

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-THE SYRO CANISTER WAS REPLACED.						
AUTOPILOT-SQUARE-A/B SYRO PACKAGE	LV-99-04-4718F RATE SYRO MOTOR	FAR 27-72565-5	2850 840220	WTR	YES NO	
FAILURE MODE-OPEN, ELECTRICAL. THE MAIN SYRO CANISTER WAS REJECTED BECAUSE THE SARD INDICATED A SYRO NO-GO. THE ROL L RATE SYRO SPIN MOTOR WAS FOUND TO HAVE PHASE B OPEN. EXAMINATION OF THE WIRE IN PHASE B INDICATED THE FAILURE WAS CAUSED BY EXCESSIVE CURRENT. THE REASON FOR THE EXCESS CURRENT WAS NOT LEARNED.						
CORRECTIVE ACTION-NONE. THE CAUSE OF THE FAILURE WAS NOT LEARNED.						
AUTOPILOT-SQUARE-A/B SYRO PACKAGE	LV-99-04-4731F SARD SUBASSEMBLY 2	FAR 27-43186-5	840218	FACTORY	NO NO	60/C
FAILURE MODE-FAIL DURING OPERATION. UNIT REJECTED FOR A NO-GO DURING NEXT ASSEMBLY TESTING. THE TEST SET WAS NOT OPERATING PROPERLY.						
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B SYRO PACKAGE	LV-99-04-4729F SARD SUBASSEMBLY TWO	FAR 27-41386-5	840217	FACTORY	YES NO	60/C
FAILURE MODE-OUT OF TOLERANCE. THREE MODULES WERE REJECTED FOR IMPROPER OUTPUT WAVE-FORM.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B SYRO PACKAGE	27A3213 RATE SYRO	UTP-PET 27-04374-5	840217	60/C	YES NO	MINN. MONYMEEL L JRS101A3
FAILURE MODE-OUT OF TOLERANCE. AT 160 DEEP THE SPIN MOTOR WOULD NOT REACH SYNCHRONOUS SPEED OF 1600 RPM. AS TEMPERATURE INCREASED, SPEED DECREASED. PROBABLE CAUSE OF FAILURE IS EXCESSIVE A-2 CEMENT BUILD-UP ABOUT THE SARD MAGNET.						
CORRECTIVE ACTION-VENDOR HAS INITIATED SPECIAL HIGH TEMPERATURE TESTS ON ALL REMAINING UNITS AT HIS PLANT (WHICH ARE BOSTON MADE UNITS) WHILE SYRO IS IN COMPLETED STATE. REF. PR-654-2-198.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	89A2894.1 SPIN MOTOR TRANSFORMER MOUNTING SC 27-41330-813 NEW	UTP-PMT	840203	60/C	YES	60/C NO
FAILURE MODE-STRUCTURAL-AT COMPLETION OF PMT (R/S) VIBRATION MOUNTING SCREWS FOR SPIN MOTOR TRANSFORMER WERE LOOSE ON POWER GROUP 27-41330-813 OF GYRO PACKAGE 89-41008. REFER TO PRR 164 AND 164A.						
CORRECTIVE ACTION- POSSIBILITY LOCKTITE WAS MISSING FROM SCREWS. MANUFACTURING PROCESS SPECIFICATION 24.22-1 INDICATES METHOD FOR APPLICATION OF LOCKTITE. SURVEY 89-55 ISSUED TO ENSURE SCREWS ARE ADEQUATELY SECURED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	89A2894.1 ELAPSED TIME METER	UTP-PMT	840203	60/C	YES	NO
FAILURE MODE-STRUCTURAL. AT COMPLETION OF PMT (R/S) VIBRATION, ELAPSED TIME METER WAS DAMAGED AND GEAR TRAIN WHICH DRIVES INDICATOR WAS OPENED. REFER TO PRR 164 AND 164A.						
CORRECTIVE ACTION-NO ACTION REQUIRED, NOT A FLIGHT PROBLEM.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4613F SMD ASSEMBLY RESISTOR	FAR 27-43229-3	840200	FACTORY	YES	60/C NO
FAILURE MODE-OUT OF TOLERANCE-THREE ASSEMBLIES WERE REJECTED. S/N 387 COULD NOT BE CALIBRATED. S/N 378 HAD WRONG FILTER PEAK FREQUENCY. S/N 387 HAD AN INOPERATIVE FILTER. ALL FAILURES WERE CONFIRMED. THE FAILURE OF S/N 387 WAS ATTRIBUTED TO EXCESSIVELY TIGHT LIMITS ON THE VALUE OF CALIBRATION RESISTOR. THE UNIT WOULD CALIBRATE WITH A RESISTOR SLIGHTLY LARGER THAN THE UPPER LIMIT. THE FAILURES OF S/N 378 AND 387 WERE DUE TO THE TEMPERATURE SENSITIVE NATURE OF THE SMD CIRCUIT.						
CORRECTIVE ACTION-AN ECP TO CORRECT SMD PROBLEMS WAS REJECTED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4713F SMD ASSEMBLY	FAR 27-43229-3	840128	FACTORY	YES	60/C NO
FAILURE MODE-OUT OF TOLERANCE. CHANNELS ONE AND FIVE HAD NO OUTPUT DURING FACTORY CHECKOUT. THE SMD SUBASSEMBLY ON E IN CHANNEL 5 WAS TEMPERATURE SENSITIVE. THE SMD SUBASSEMBLY TWO IN CHANNEL ONE WAS TEMPERATURE SENSITIVE. ADDITIONALLY, THE FILTER P/N 27-04948-B DID NOT MEET THE FREQUENCY RESPONSE REQUIREMENTS. THE CHANNEL ONE FAILURE WAS ATTRIBUTED TO THESE DISCREPANCIES.						
CORRECTIVE ACTION-NONE. AN ECP TO CORRECT SMD PROBLEMS WAS REJECTED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89A2895.1 SHRO	UTP-PRT 89-45045-1	840127	60/C	YES NO	
FAILURE MODE-OUT OF TOLERANCE. DURING 2 AXIS PRT (R/S) VIBRATION - TEMP. TEST SHRO PRES WAS HIGH DUE TO MECHANICAL RESONANCE BETWEEN 400 - 450 CPS CAUSING MOTION BETWEEN PICK OFF AND SPIN MOTOR THEREBY GENERATING EXTRA PULSES. REFER TO PRR 140.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89A2895.1 RATE GYRO PACKAGE	UTP-PRT 89-45045-1	840127	60/C	YES NO	
FAILURE MODE-OUT OF TOLERANCE. DURING 2 AXIS PRT (R/S) VIBRATION-TEMPERATURE, YAW AND PITCH GYRO8 HAD EXCESSIVE TOTAL WALLS DURING VIBRATION. REFER TO PRR 140. CAUSED BY ANGULAR. VIBRATION CROSS TALK.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4677-F RATE GYRO	FAR 27-04574-3	840124	FACTORY	YES NO	HONEYWELL JR3101A2
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYROSCOPE WAS REJECTED IN RECEIVING INSPECTION WHEN, AFTER SURVEY 32-83, THE UNIT IN-PHASE MALL OUTPUT VOLTAGE WAS 14.75 MV WHEREAS THE SPEC MAXIMUM ALLOWED IS 13.0 MV. ANALYSIS COULD NOT CONFIRM THE REPORTED FAILURE. HOWEVER, IT WAS FOUND THAT THE IN-PHASE MALL HAD INCREASED SLIGHTLY OVER 11 MV IN MORE THAN TWO YEARS. THE CAUSE OF THIS SHIFT OF IN-PHASE MALL IS ATTRIBUTED TO PROBABLE STABILIZATION OF THE INTERNAL PARTS OF THE GYRO, OR THE RESULT OF SOME MISHANDLING.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4659F RATE GYROSCOPE	FAR 27-04574-3	840124	FACTORY	YES NO	HONEYWELL JR3101A2
FAILURE MODE-OUT OF TOLERANCE. HIGH HYSTERESIS OF 9.28 MILLIVOLT. MAXIMUM ALLOWED IS 8.4.						
CORRECTIVE ACTION-NONE.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTM	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	-99-04-4839C DISPLACEMENT GYROSCOPE	FAR 7-04250-3	640124	FACTORY	YES NO	YES REARFOIT NO C70-2506000	091630
FAILURE MODE-DRIFT. TWO GYROSCOPES HAD HIGH DRIFT. CAUSE NOT KNOWN. ASSEMBLIES NOT RECEIVED FOR ANALYSIS.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LY-99-04-4833-F SARCO TRANSISTOR	FAR 27-43183-3	640123	FACTORY	YES NO		092951
FAILURE MODE-FAIL DURING OPERATION. THIS SARCO ASSEMBLY WOULD WORK WHEN VOLTAGE WAS FIRST APPLIED. AFTER A FEW SECONDS THE OUTPUT BECAME ERRATIC AND DROPPED OUT COMPLETELY. ANALYSIS ATTRIBUTED THE FAILURE TO Q1 (2N336) WHICH WAS DEFECTIVE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LY-99-04-4838F RATE GYROSCOPE	FAR 27-04574-3	640123	FACTORY	YES NO	YES MONEYWELL NO JRS-101A2	092167
FAILURE MODE-OUT OF TOLERANCE. HIGH IN-PHASE NULL OUTPUT VOLTAGE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	69A2067 DISPLACEMENT GYRO	UTP-PET 7-04250-801	640121	GO/C	YES NO	YES REARFOIT NO C70 2506000	092334
FAILURE MODE-CONTAMINATION. STICKION FAILURES AT -4 DEG F IN W3 POSITION. PLUS 40 DEG F IN THE W1 AND W2 POSITIONS. AND ALSO IN POST TEMPERATURE TEST IN THE W1 AND W3 POSITIONS. THE FIXED RESTRAINT DRIFT FOR W3 POSITION WAS OUT OF TOLERANCE AT PLUS 5.21 DEG/HR. OR A SHIFT FROM I.S.P.T. OF 5.69 DEG/HR. WHERE TOLERANCE LIMIT IS 3.0 DEG/HR. THIS WAS CAUSED BY METAL SLIVERS AND PARTICLES IN TAKE-OFF MOTOR AREA.							
CORRECTIVE ACTION-FREON USED IN FLUSH SYSTEM AT VENDOR WILL BE CHANGED AFTER EVERY 15 GYROS TO PREVENT CONTAMINATION. EACH REPAIR GYRO WILL BE COUNTED AS THREE AND EACH NEW GYRO AS ONE. VENDOR QA IMPROVED INSPECTION WITH MORE FOX 1 INSPECTION OF MILLIPORE FILTERS AFTER FREON FLUSH. CRITERIA STATED FOR CONTAMINATION IS THAT PARTICLES ON FILTER ARE NOT TO EXCEED 0.003 INCHES IN LENGTH. REF. PR-654-2-133.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B STRO PACKAGE	LV-99-04-4870F 3MRG FILTER	FAR 27-43229-3	940150	FACTORY	YES	60/A NO	991501
FAILURE MODE-OUT OF SPECIFICATION. 3MRG CIRCUIT BOARD WOULD NOT CALIBRATE. CHANNEL 2 FILTER WAS OUT OF SPECIFICATION.							
CORRECTIVE ACTION-PEC FAR 3P-99-04-3782, DATED FEBRUARY 1964, 60/A PURGED FROM STOCK. ALL FILTERS PURCHASED PRIOR TO NOTE-J OF DRAWING 27-04948-3 BECAME EFFECTIVE. ONLY FILTERS PASSING THE NEW SPECIFICATION WERE RETURNED TO STOCK.							
AUTOPLOT-SQUARE-A/B STRO PACKAGE	LV-99-04-4837F 3MRG SUBASSEMBLY TWO	FAR 27-43196-3	940116	FACTORY	YES	60/C NO	991501
FAILURE MODE-ELECTRICAL OPEN. THE MODULE HAD DISTORTED OUTPUT DUE TO A BROKEN LEAD INSIDE THE MODULE. THE REASON FOR THE BROKEN LEAD WAS NOT LEARNED.							
CORRECTIVE ACTION-NONE.							
AUTOPLOT-SQUARE-A/B STRO PACKAGE	LV-99-04-4869 AMPLIFIER. TRANSISTOR	FAR 27-41643-903	1990 940117	FACTORY	YES	60/A NO	991501
FAILURE MODE-OUT OF TOLERANCE. AMPLIFIER ASSEMBLY IS HEAT SENSITIVE. CAUSED BY A HEAT SENSITIVE 2N2954 TRANSISTOR.							
CORRECTIVE ACTION-FAR A-90-04-3839 REQUESTED AMPLIFIER ASSEMBLY BE REDESIGNED USING HIGH RELIABILITY COMPONENTS AND CIRCUITRY. REQUEST FOR APPROVAL TO PREPARE AN ECP WAS DENIED. VALUE ENGINEERING INDICATED THAT THIS CHANGE DOES NOT QUALIFY AS A VECP AND RECOMMENDS PRESENT TRANSISTORS MADE BY SPERRY BE RETAINED. SYSTEM ENGINEERING CONCURS.							
AUTOPLOT-SQUARE-A/B STRO PACKAGE	A-99-04-4868F RATE STROSCOPE	FAR 27-04374-3	940117	FACTORY	YES	MONETWELL NO 27-04374-3	991501
FAILURE MODE-SHORT, ELECTRICAL. FORMER WINDING SHORTED DIRECTLY TO GROUND. CAUSE WAS ONE STRAND OF A MULTI-STRANDED WIRE SHORTING TO THE STROSCOPE CASE.							
CORRECTIVE ACTION-MONETWELL HAD INSTITUTED A PLANT WIDE SOLDERING TRAINING AND CERTIFICATION PROGRAM. DETAILED UNIT THEN INSPECTION INSTRUCTIONS REPLACED CHECK LISTS AND INSPECTION PER BLUE PRINTS. CHANGES WERE EFFECTIVE AUGUST 1963. THE FAILED UNIT WAS MADE PRIOR TO THIS DATE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOTT-SQUARE-A/B GYRO PACKAGE	LV-89-04-4871P SHARD CIRCUIT BOARD	PAR 27-45230-8	640118	FACTORY	YES 60/A NO	091094
FAILURE MODE-FAIL DURING OPERATION. SHARD CIRCUIT BOARD WOULD NOT CALIBRATE. CAUSE NOT KNOWN.						
CORRECTIVE ACTION-NONE.						
AUTOPLOTT-SQUARE-A/B GYRO PACKAGE	27-3214 BAND PASS FILTER	UTP-PET 27-04948-3	640114	60/C	YES APPLIED COMPO NO ENTS AC13084	092333
FAILURE MODE-STRUCTURAL. AFTER THERMAL SHOCK AND DURING VISUAL EXAMINATION, PARA. 4.5-2.2. UN1, A SMALL CRACK WAS DISCOVERED ON THE SIDE OF THE CASE. CAUSE UNKNOWN.						
CORRECTIVE ACTION-THIS DISCREPANCY WAS CONSIDERED MINOR, AND TESTING CONTINUED. VENDOR WAS INFORMED OF THE REPORTED DISCREPANCY. REF. FR-854-2-134.						
AUTOPLOTT-SQUARE-A/B GYRO PACKAGE	LV-89-04-4843F RATE GYROSCOPE	PAR 27-04374-3	640113	FACTORY	YES JRS-101A2 NO	091183
FAILURE MODE-STRUCTURAL. IN PHASE COMPONENT OF THE HALL OUTPUT VOLTAGE WAS PLUS 34.8 MILLIVOLTS. FAILURE WAS THOUGHT TO HAVE OCCURRED AFTER TEMPERATURE SHOCK TEST. CAUSE WAS DETERMINED TO BE A BROKEN EPOXY BOND ON THE PICKOFF. THE BOND FAILED DUE IMPROPER PREPARATION OF END CAP SURFACE.						
CORRECTIVE ACTION- A PALL TEST EQUAL TO A LOAD OF 101 X GRAVITY WAS ADDED TO PICKOFF END CAP ASSEMBLY. A LIGHT SAND BLAST WAS ADDED TO THE CONTACT SURFACE OF END CAP BEFORE CEMENTING TO INCREASE STRENGTH OF BOND.						
AUTOPLOTT-SQUARE-A/B GYRO PACKAGE	A-89-04-4868F AMPLIFIER	PAR 27-4100E-833	76E 640110	FACTORY	YES 60/A NO	091093
FAILURE MODE-OUT OF TOLERANCE. YAW TORQUING RESPONSE TOO LOW. PROBABLE CAUSE OF FAILURE WAS AN APACHE MALFUNCTION. DURING TESTING ANOTHER FAILURE WAS FOUND. OUTPUT OF PITCH AMPLIFIER BECAME ERRATIC. RESISTOR R-3 DID NOT HAVE CONDUCTIVE CEMENT BECOMING BETWEEN LEAD AND THE RESISTIVE ELEMENT. THIS ALLOWED MOVEMENT OF THE LEAD, INTERMITTENTLY BREAKING CONTACT.						
CORRECTIVE ACTION-NONE CORRECTIVE ACTION TAKEN ON THE REPORTED FAILURE OF YAW TORQUING RESPONSE TOO LOW. FOR THE INTERMITTENT RESISTOR A SURVEY INSTRUCTION 89-84 DATED FEBRUARY 24 1964 REQUIRED REMOVAL FROM STOCK OF ALL 88-73030-001 THROUGH -333 RESISTORS MANUFACTURED BY INTERNATIONAL RESISTANCE BEFORE MARCH 1961. THEY ESTABLISHED A NEW METHOD OF MANUFACTURE IN MARCH 1961.						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-43467 AMPLIFIER-TRANSISTOR	FAR 27-72589-1	840109	FACTORY	YES NO		093133
FAILURE MODE-FAIL DURING OPERATION. THE SERVO CAN WAS REJECTED FOR ERRATIC CUTOUT IN THE VERNIER ONE VAN CHANNEL. THE FAILURE WAS CAUSED BY A DEFECTIVE TRANSISTOR Q1 IN THE VAN SWITCHING AND BURNING AMPLIFIER. Q1 WAS A WESTERN CENTRAL 232.							
CORRECTIVE ACTION-ALL CENTRAL TRANSISTORS WERE PURVED FROM STOCK.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	27A1847-3 AND 27A2173-3 RATE GYRO	UTP-PET 27-04374-8	840109	60/C	YES MINN. HONEYWELL NO L	J89-101A2	095010
FAILURE MODE-OUT OF TOLERANCE. DURING POST 1000 HOUR LIFE TEST PROOF CYCLE A, AVERAGE PHASE NULL, LARGEST TOTAL NULL AND TORQUE LINEARITY WERE OUT OF TOLERANCE. DURING PROOF CYCLE B DAMPING RATIO WERE OUT OF TOLERANCE. CAUSE OF FAILURE WAS A BROKEN EPONY BOND AT THE PICK-OFF, BETWEEN THE PICK-OFF END CAP, AND THE PICK-OFF LAMINATED STACK HAD SEPARATED AT THE END-CAP.							
CORRECTIVE ACTION-VENDOR TO 1) A FULL TEST EQUIVALENT TO A LOAD OF 101 G3 WAS ADDED TO THE PICK-OFF END CAP ASSEMBLY TEST TO ENSURE THAT THE CEMENTED BOND WOULD BE OF SUFFICIENT STRENGTH. ANY CRACKS RESULTING FROM THE PICK-OFF END CAP WOULD BE CAUSE FOR REJECTION. 2) LIGHT SANDBLAST OF THE CONTACT SURFACE OF THE END CAP (BEFORE CEMENTING) WAS ADDED TO THE FAB OPERATIONS. THIS WOULD INCREASE STRENGTH OF THE BOND. FR 630-2-117A.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4527-F GYROSCOPE/RATE	FAR 35-04120-1	1460 840109	FACTORY	YES HONEYWELL NO		091817
FAILURE MODE-OUT OF SPECIFICATION. THE RATE GYROSCOPE FAILED IN THE FACTORY WHEN TORQUE OUTPUT WAS OUT OF SPECIFICATION. ANALYSIS REVEALED THAT THE GYRO WAS IN SPECIFICATION IN RECEIVING WHICH REQUIRES 0.143 DEGREE/SECOND/VOLT PLUS OR MINUS 20 PERCENT (GIVING A LOW OF 0.114 DEGREE/SECOND/VOLT) BUT OUT OF SPECIFICATION IN PRODUCTION WHICH ALLOWS A RANGE OF PLUS OR MINUS 8 PERCENT FOR A LOW OF 0.132 DEGREE/SECOND/VOLT. THE MEASURED OUTPUT FOR THIS GYRO WAS 0.130 DEGREE/SECOND/VOLT.							
CORRECTIVE ACTION-A NEW PRODUCTION SPECIFICATION WAS RELEASED 17 DECEMBER 1963 WHICH WIDENED TORQUE SENSITIVITY TO 0 PLUS OR MINUS 13 PERCENT OF NOMINAL.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AG435-001-2FC-CO-01-0008-008 DC AMP TRANSISTOR	COMPOSITE-FACTORY 27-41000-031	8300 840107	FACTORY	YES NO		
FAILURE MODE-ERRATIC OPERATION-AN UNEXPECTED 9 DEGREE VERNIER ROLL DEFLECTION OCCURRED PRIOR TO BOOSTER STAGING. DUE TO A NOCK SENSITIVE TRANSISTOR IN THE VERNIER ROLL DC AMPLIFIER. REF FAILURE ANALYSIS REPORT LV-99-04-436791.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-ERRATIC OPERATION-SYSTEM WOULD BE SHOCK OR VIBRATION SENSITIVE.							007000
VEHICLE EFFECT-COMPOSITE RESCHEDULED.							
CORRECTIVE ACTION-THE SERVO AMPLIFIER PACKAGE WAS REPLACED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4898-F RATE GYRO QUADRILEVER	FAR 27-04374-3	840107	FACTORY	YES NO	MINN-MONM-WELL NO JRS1D1A2	001271
FAILURE MODE-OUT OF SPECIFICATION. THE RATE GYROSCOPE REPORTEDLY HAD EXCESSIVE PHASE SHIFT AT 180 DEGREES DURING TESTS IN THE ELECTRONICS ASSEMBLY AREA. ALL CALIBRATION RESISTORS WERE REMOVED BEFORE THE GYROSCOPE WAS DELIVERED FOR FAILURE ANALYSIS. ANALYSIS WITH RESISTORS OF PROPER VALUE COULD NOT CONFIRM THE REPORTED FAILURE. HOWEVER, ANALYSIS DID FIND THE IN-PHASE COMPONENT OF THE GYROSCOPE NULL TO BE OVER 150 MV WHEREAS THE SPECIFICATION ALLOWABLE IS 1.5 MV. THIS EXCESSIVE NULL WAS CAUSED BY A DISTORTED QUADRILEVER.							
CORRECTIVE ACTION-A REVIEW OF GYROSCOPE HANDLING METHODS WAS PERFORMED AND CHANGES OF THE TRIMMING RESISTORS IS NOW DISALLOWED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4834F SMD SUBASSEMBLY 1	FAR 27-43183-3	840101	FACTORY	YES NO	60/A	001404
FAILURE MODE-OUT OF SPECIFICATION. SEVEN SMD SUBASSEMBLIES GAVE NO-60 INDICATIONS DURING NEXT ASSEMBLY LEVEL TESTING. THEY HAD NO OUTPUT AT A TEMPERATURE A FEW DEGREES BELOW AMBIENT. SPECIFIC CAUSE OF FAILURES NOT KNOWN. MOST BOARD LEVEL SMD FAILS CAN BE ATTRIBUTED TO SUBASSEMBLY FAILS CAUSED BY-1, A SUB ASSEMBLY CAN FAIL IN ONE NEXT ASSEMBLY AND FUNCTION CORRECTLY IN ANOTHER DUE TO TOLERANCE BUILD UP. 2. SUB ASSEMBLY-ONE IS TEMPERATURE SENSITIVE. 3. THE VOLTAGE DROP ACROSS DIODE CR-1 CAN REDUCE INPUT SIGNAL TO TRANSISTOR Q-1 SUFFICIENTLY TO CAUSE A SCORER LINE GO. WITH CR-1 SHORTED THE UNIT OPERATES PROPERLY AND TEMPERATURE SENSITIVITY IS GREATLY REDUCED. 4. SOME SUBASSEMBLIES WEAR PROPERLY WITH A GYROSCOPE SMD SIGNAL BUT FAIL WHEN A TEST SET SIGNAL IS USED. 5. MANY SMD CIRCUITS WILL NOT CALIBRATE WITHIN SPECIFIED RANGE OF RESISTORS BUT WOULD CALIBRATE AND FUNCTION PROPERLY WITH A SLIGHTLY WIDENED RESISTOR RANGE.							
CORRECTIVE ACTION-BAR LV-99-04-3828 LED TO INITIATION OF MAP MOD1020 AND ECP 7038 WHICH REMOVED DIODES CR-1 AND CR-2 FROM SUBASSEMBLY-ONE, AND WHICH WIDENED THE CALIBRATION RANGE. AIR FORCE CANCELLED THESE CHANGES ON MARCH 10, 1964.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4806F SMD SUBASSEMBLY ONE	FAR 27-43183-3	840100	FACTORY	YES NO	60/C	
FAILURE MODE-OUT OF TOLERANCE. 18 MODULES GAVE INCORRECT NO-60 INDICATIONS DURING NEXT ASSEMBLY TESTING. ANALYSIS REVEALED THE MODULE IS TEMPERATURE SENSITIVE BY NATURE AND DIODE CR1 CAN CAUSE REDUCTION IN INPUT SIGNAL SUFFICIENT TO PRODUCE BORDER-LINE MALFUNCTION.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI QTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-AN ECP TO CORRECT THESE PROBLEMS WAS REJECTED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89A2695.1 BARD	UTP-PRT 89-43048-1	831230	60/C	YES NO	
FAILURE MODE-OUT OF TOLERANCE. DURING PRT LOW TEMP (20 P) TEST BARD PICK-OFF DEMAGNETIZED CAUSING LOW SIGNAL. REFER TO PRR 101.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	89A2695.1 RATE GYRO PACKAGE	UTP-PRT 89-43048-1	831230	60/C	YES NO	
FAILURE MODE-FAILURE DURING OPERATION. DURING PRT LOW TEMPERATURE (20P) TEST, INTERMITTANT TEMP-SAFE NO-GO (MONITORING CIRCUIT, AND LATER CONTINUOUS NO-GO, CAUSED BY EXCESSIVE SOLDER ON TERMINALS CAUSING SHORT BETWEEN TERMINALS 19 AND 21 ON DRIVER BOARD (TB-1) ALSO. REFER TO PRR 101.						
CORRECTIVE ACTION-ELECTRONICS AREA ALERTED TO POTENTIAL SOLDERING PROBLEM AND CANISTERS COMING BACK FROM FIELD FOR REWORK WERE INSPECTED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4856F SIGNAL AMPLIFIER-TRANSFORMER	FAR 27-41876-807	2230 831219	FACTORY	YES NO	6D/A
FAILURE MODE-STRUCTURAL. TRANSFORMER CRACKED OPEN. IT WAS FOUND ALSO TO BE BURNED. EXTENSIVE COMPONENT DAMAGE WAS FOUND IN THE SIGNAL AMPLIFIER. IT APPEARED TO HAVE BEEN CAUSED BY AN EXTERNALLY APPLIED VOLTAGE. THE SOURCE, LOCATION AND TIME OF VOLTAGE APPLICATION CANNOT BE DETERMINED.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4856F DISPLACEMENT GYRO	FAR 7-04850-803	831219	FACTORY	YES NO	KEARFOIT NO C708304000
FAILURE MODE-STRUCTURAL. EXCESSIVE FIBER RESTRAINT DRIFT OF 3.5 DEGREES. MAXIMUM ALLOWABLE IS 3.0 DEGREES PER HOUR. CAUSE WAS A DISTORTED FLEXLEAD WHICH WAS CAUSED BY FLOW OF SEMI-LIQUID FLOTATION FLUID PAST THE FLEXLEAD.						
CORRECTIVE ACTION- KEARFOIT REPORT 6-116 RECEIVED IN JANUARY 1984 STATES THAT THE PRESENT QUANTITY OF GYROSCOPES REJECTED FOR DISTORTED FLEX LEADS IS VERY SMALL. TO ESTIMATE THE REMAINING FIVE FAILURES WOULD PROBABLY REQUIRE A RADII						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CAL CHANGE SUCH AS A NEW DAMPING FLUID.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4874-F SARD	FAR E7-43186-3	631218	FACTORY	YES 60/C NO	
FAILURE MODE-FAIL DURING OPERATION. SARD SUBASSEMBLY 2 HAD NO-GO CONDITION AT 1633 CPS. FAILURE NOT CONFIRMED BUT FAILURE ANALYSIS LIMITED TO SUBASSEMBLY ONLY.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN AS IT WAS NOT CONFIRMED BY LIMITED FAILURE ANALYSIS AND NO CAUSE FOR THE FAILURE INDICATION COULD BE FOUND.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4873-F SARD	FAR E7-43186-3	631217	FACTORY	YES 60/A NO	
FAILURE MODE-OUT OF TOLERANCE. SARD HAD A LOW OUTPUT ON NEXT ASSEMBLY TEST. CAUSE NOT KNOWN.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4831-F SARD CIRCUIT BOARD	FAR E7-41002-921	1990 631217	ETR	YES 60/A NO	
FAILURE MODE-OUT C. TOLERANCE. AN INTERMITTENT SARD NO-GO WAS RECEIVED. ANALYSIS: TESTING COULD NOT DUPLICATE THE FAILURE. A DISCREPANT CONNECTION WAS FOUND DURING DISASSEMBLY. THIS COULD HAVE CAUSED THE FAILURE.						
CORRECTIVE ACTION- MANUFACTURING AND INSPECTION PERSONNEL WERE SHOWN THE DISCREPANT CONNECTION. THE IMPORTANCE OF CAREFUL ASSEMBLY AND INSPECTION WAS STRESSED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4818-F SARD SUBASSEMBLY ONE	FAR E7-43186-3	631218	FACTORY	YES 60/C NO	
FAILURE MODE-ELECTRICAL OPEN. THE MODULE HAD NO OUTPUT DUE TO A BROKEN WELD.						
CORRECTIVE ACTION-EFFECTIVE 18 MARCH 1964, WELD STATIONS ARE CERTIFIED HOURLY AND STACK WELDING IS ELIMINATED.						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI VENDOR PART NO	VENDOR NAME
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4897-F SHRD WIRING	FAR 27-43185-3	831216	FACTORY	YES 60/C NO	993738
FAILURE MODE-OPEN (ELECT). THIS SPIN MOTOR ROTATION-DETECTOR SUBASSEMBLY HAD NO OUTPUT DUE TO A BROKEN WELD JOINT WERE THE INPUT LEAD ATTACHES TO THE NICKEL WELD RIBBON.						
CORRECTIVE ACTION-60/C ELIMINATED STACK WELDING AND PERFORMED AN HOURLY CERTIFICATION OF WELD STATIONS.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4553-F SHRD SUBASSEMBLY 1	FAR 27-43185-3	831216	FACTORY	YES NO	993770
FAILURE MODE-OPEN (ELECTRICAL). THE SPIN-MOTOR ROTATION DETECTOR (SHRD) SUBASSEMBLY 1 (S/N 323) FAILED AT THE FACTORY GIVING A NO-GO INDICATION THE FAILURE WAS ATTRIBUTED TO A BROKEN WELD WHICH RESULTED IN AN ELECTRICAL OPEN IN THE MODULE.						
CORRECTIVE ACTION- 1. A HOLDING FIXTURE FOR TESTING IN-LINE WELDS WAS MADE. 2. NEW POTTING WELDS ARE BEING USED. 3. THE 40-WATT SECOND POWER SUPPLY FOR WELDING TIMED COPPER TO NICKEL RIBBON WAS DELETED. 4. THERE IS HOURLY CERTIFICATION OF WELD STATIONS. 5. STACK WELDING WAS ELIMINATED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4553-F SHRD SUBASSEMBLY 1	FAR 27-43185-3	831216	FACTORY	YES NO	993771
FAILURE MODE-OPEN (ELECTRICAL). THE SPIN-MOTOR ROTATION-DETECTOR (SHRD) SUBASSEMBLY 1 (S/N 3153) FAILED AT THE FACTORY GIVING A NO-GO INDICATION. THE FAILURE WAS ATTRIBUTED TO A BROKEN WELD WHICH RESULTED IN AN ELECTRICAL OPEN IN THE MODULE.						
CORRECTIVE ACTION-1. A HOLDING FIXTURE FOR TESTING IN-LINE WELDS WAS MADE. 2. NEW POTTING WELDS ARE BEING USED. 3. THE 40-WATT-SECOND POWER SUPPLY FOR WELDING TIMED COPPER TO NICKEL RIBBON WAS DELETED. 4. THERE IS HOURLY CERTIFICATION OF WELD STATIONS. 5. STACK WELDING WAS ELIMINATED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4553-F SHRD SUBASSEMBLY 1	FAR 27-43185-3	831216	FACTORY	YES NO	
FAILURE MODE-OPEN (ELECTRICAL). THE SPIN-MOTOR ROTATION DETECTOR (SHRD) SUBASSEMBLY 1 (S/N3156) FAILED AT THE FACTORY GIVING A W/-GO INDICATION. THE FAILURE WAS ATTRIBUTED TO A BROKEN WELD WHICH RESULTED IN AN ELECTRICAL OPEN IN THE MODULE.						
CORRECTIVE ACTION-1.A HOLDING FIXTURE FOR TESTING IN-LINE WELDS WAS MADE. 2. NEW POTTING WELDS ARE BEING USED. 3. 7						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
HC 40-WATT SECOND POWER SUPPLY FOR WELDING TIGED COPPER TO NICKEL RIBBON WAS DELETED. 4. THERE IS HOURLY CERTIFICATE OF WELD STATIONS. 3. STACK WELDING WAS ELIMINATED.							893396
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4802C GYRO DISPLACEMENT	FAR 7-04250-3	931210	FACTORY	YES	KEARFOOT NO C70-2308-000	893392
FAILURE MODE-DRIFT. TWO GYROS WERE REJECTED FOR HIGH DRIFT. THE GYROS WERE NOT SUBMITTED FOR FAILURE ANALYSIS.							
CORRECTIVE ACTION-NONE. NO ANALYSIS WAS PERFORMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	8942894.1 AMPLIFIER-TRANSISTOR Q-1 -2N335-	UTP-PAT	931209	FACTORY	YES	GENERAL ELECTRIC NO IC	899834
FAILURE MODE-OPEN-ELECTRICAL-DURING INITIAL PROOF CYCLE YAW RATE EMITTER-FOLLOWER OUTPUT DECREASED FROM 0.692 VOLTS TO 0.500 VOLTS DUE TO A FAULTY Q-1 TRANSISTOR. A BAD SPOT WELD CAUSED THE LEAD TO BREAK LOOSE. REFER TO FAILURE LOG NUMBER P/N-086 (89-41002-813).							
CORRECTIVE ACTION-VENDOR WAS NOTIFIED OF FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4333-P ROLL DISPLACEMENT GYRO SPIN MOTOR	FAR 7-04250-803	2960 931209	FACTORY	NO	KEARFOOT YES	891300
FAILURE MODE-FAIL DURING OPERATION. DURING ANALYSIS OF THE GYROSCOPE FAILURE, DUE TO A SHORTED FLEX LEAD, IT WAS DISCOVERED THAT THE SPIN MOTOR WAS MAKING A GRINDING SOUND AT TWO POINTS IN THE MOTOR RUNUP. ANALYSIS REVEALED THE MOTOR BEARING HAD LOST MOST OF THEIR LUBRICATION. THIS MAY HAVE RESULTED FROM OVERHEATING OF THE BEARINGS WHILE THE GYROSCOPE WAS INACTIVE WITH THE PHASE-A OPEN CIRCUIT.							
CORRECTIVE ACTION-NONE. THE EXACT CAUSE OF THE SPIN MOTOR FAILURE IS UNKNOWN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4333-P GYROSCOPE/ROLL DISPLACEMENT	FAR 7-04250-803	2960 931209	FACTORY	YES	KEARFOOT NO	
FAILURE MODE-SHORT (ELECTRICALLY). THE AUTOPILOT GYROSCOPE PACKAGE FAILED WHEN IT HAD NO SPIN-MOTOR ROTATION-DETECTOR (SHRD) OUTPUT. THE FAILURE RESULTED WHEN THE PHASE-A FLEXLEAD SHORT CIRCUITED AND BROKE. THE INACTIVE GYROSCOPE MAY HAVE RESULTED IN OVERHEATING AND SUBSEQUENT LOSS OF LUBRICATION TO THE SPIN MOTOR BEARINGS.							
CORRECTIVE ACTION-DIFFLERS WERE INCORPORATED IN THE P/N -803 AND -801 GYROSCOPES TO ELIMINATE FAILURES DUE TO FLEXLEAD DISTORTIONS WHICH HAD PREVIOUSLY BEEN COMMON. ALTHOUGH THIS WAS A P/N-803 GYROSCOPE, THE OCCURRENCE OF THIS FAILURE							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE	DIP TIME	SITE DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	E MODE HAS BEEN GREATLY REDUCED. IT IS IMPOSSIBLE TO COMPLETELY ELIMINATE THIS FAILURE MODE BECAUSE OF THE NATURE OF QUALITY OF THE MATERIALS USED.							091301
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4817-F SMD SUBASSEMBLY ONE	FAR 27-43185-3	031206	FACTORY	YES	NO		093993
FAILURE MODE-OUT OF TOLERANCE. THE MODULE GAVE A NO-60.								
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-19-04-4803F RATE GYRO	FAR 27-45045-805	00F 031206	FACTORY	YES	NO		093993
FAILURE MODE-OUT OF TOLERANCE. THE TWO RATE PACKAGE WAS REJECTED FOR HIGH PITCH TORQUING GAIN. THE FAILURE WAS CAUSED BY A LOOSE CONNECTION AT PIN 14 ON THE EMITTER FOLLOWER BOARD.								
CORRECTIVE ACTION-NONE.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4804F SMD FLIP FLOP	FAR 27-43185-3	031205	FACTORY	YES	NO		091105
FAILURE MODE-OUT OF TOLERANCE. SMD SUB ASSEMBLY WOULD NOT FUNCTION WITH A BIAS LEVEL OF 25 VOLTS DC. CAUSE WAS A MARGINAL CONDITION IN THE SUBASSEMBLY INPUT. A SLIGHT INCREASE IN DIODE VOLTAGE DROP AND THE SLIGHTLY LOWERED TRANSISTOR GAIN AT LOWER TEMPERATURE WILL CUT OFF THE FLIP-FLOP.								
CORRECTIVE ACTION- IN REQUEST TO FAR LV-99-04-3926 A MAP M031020 AND ECP 7639 WERE INITIATED TO REMOVE THE INPUT DIODE (1N498) FROM THE SUBASSEMBLY. AIR FORCE CHANGE BOARD CANCELLED THESE PROPOSALS.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4361-F CIRCUIT BOARD TRANSISTOR 8-8	FAR 27-41445-3	031204	FACTORY	YES	NO		092026
FAILURE MODE-SHORT (ELECTRICAL). THE COUNTER ASSEMBLY FAILED DURING FACTORY VIBRATION TEST SHOWING A STEADY DC OUTPUT INSTEAD OF A SQUARE WAVE OUTPUT. THE CAUSE OF THIS FAILURE WAS A SHORT CIRCUIT IN TRANSISTOR 8-8.								
CORRECTIVE ACTION-NONE. THE ACTUAL CAUSE OF TRANSISTOR FAILURE IS UNKNOWN.								

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-48-04-4502-F YAW DISPLACEMENT GYRO	FAR 7-04850-3	60F 631804	FACTORY	YES NO		892333
FAILURE MODE-FAIL DURING OPERATION. THE AUTOPILOT GYROSCOPE PACKAGE FAILED DURING SYSTEM TESTS WHEN A SPIN MOTOR ROTATION DETECTOR (SMRD) NO 80 WAS OBSERVED. THE FAILURE WAS CAUSED BY LOSS OF LUBRICANT IN THE MOTOR BEARINGS OF THE YAW DISPLACEMENT GYROSCOPE.							
CORRECTIVE ACTION-A SPIN MOTOR RELIABILITY PROGRAM WAS STARTED ON THE YAW DISPLACEMENT GYROSCOPE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4811F SMRD SUBASSEMBLY TWO	FAR 27-43186-3	831127	FACTORY	YES NO	YES 60/C	892917
FAILURE MODE-STRUCTURAL. MODULE HAD IMPROPER OUTPUT WAVEFORM DUE TO A BROKEN WELD.							
CORRECTIVE ACTION-HOURLY CERTIFICATION OF WELD STATIONS WAS INSTITUTED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4801C GYRO DISPLACEMENT	FAR 7-04850-1	831128	FACTORY	YES NO	YES NEARFOTY NO T2508-2A	893391
FAILURE MODE-OUT OF TOLERANCE. SIGNAL GENERATOR SENSITIVITY WAS HIGH OUT OF SPECIFICATION. GYRO WAS NOT SUBMITTED FOR FAILURE ANALYSIS.							
CORRECTIVE ACTION-MORE. NO ANALYSIS WAS PERFORMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4578-F AMPLIFIER	FAR 27-41633-838	1940 831120	FACTORY	YES NO		892337
FAILURE MODE-OUT OF SPECIFICATION. THE TORQUE AMPLIFIER WAS REJECTED WHEN AFTER TWO HOURS WARMUP THE GAIN DECREASED BELOW THE AMOUNT ALLOWED DURING PITCH DISPLACEMENT GAIN TESTS.							
CORRECTIVE ACTION-THIS REPORTED FAILURE WAS NOT CONFIRMED AND NO CAUSE FOR THE REJECTION COULD BE FOUND DURING A FACTORY INVESTIGATION.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4588F RATE GYRO	FAR 27-04574-3	631116	FACTORY	YES	HONEYWELL	893132
FAILURE MODE-OUT OF TOLERANCE. THE GYRO WAS REJECTED FOR HAVING A HIGH HYSTERESIS NULL. THE FAILURE WAS CONFIRMED. THE REASON FOR IT WAS NOT FOUND. THIS GYRO WAS ANALYZED FOR THE SAME FAILURE PREVIOUSLY. SEE FAR 89-99-04-4484.							
CORRECTIVE ACTION-ALL C2N1232 TRANSISTORS WERE PURGED FROM STOCK.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4494-F AUTOPILOT GYRO PACKAGE CONNECTOR	FAR 35-41002-821	135D 631116	FACTORY	YES		890878
FAILURE MODE-ERRATIC OPERATION. GYRO PACKAGE WAS CONSIDERED FAILED WHEN SMD LIGHT WAS INTERMITTENTLY NO-GO DURING VIBRATION TEST. FAILURE WAS CAUSED BY AN INTERMITTENT OPEN IN PLUG U2A3P4 OF THE TEST SET CABLE TO THE GYRO PACKAGE.							
CORRECTIVE ACTION-NO ACTION REQUIRED. PLUGS ARE EXAMINED DURING NORMAL VALIDATION, AND THIS PROBLEM IS CONSIDERED A N ISOLATED FAILURE. THE CABLE WAS REPLACED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4407-F REMOTE RATE GYRO PACKAGE	FAR 35-41019-5	135D 631116	FACTORY	YES		890827
FAILURE MODE-OUT OF SPECIFICATION. PITCH RATE GYRO OUTPUT WAS OUT OF SPECIFICATION HIGH. THE HIGH OUTPUT WAS CAUSED BY A HIGH SENSITIVITY OF THE RATE GYRO. THE HIGH SENSITIVITY RESULTED BECAUSE THE PHASE-ADJUST RESISTORS ON THE END CAP OF THE GYRO HAD BEEN CHANGED SOMETIME AFTER RECEIPT OF THE GYRO AT 6D/C. THE SENSITIVITY WAS SATISFACTORY WHEN RECEIVED FROM VENDOR.							
CORRECTIVE ACTION-6D/C DESIGN GROUP REMOVED THE NOTE ON THE GYRO PACKAGE TOP DRAWING ALLOWING THE NULL OF THE RATE GYROS TO BE TRIMMED BY ADJUSTMENT OF THE CALIBRATING RESISTORS ON THE CAP OF THE GYRO. DRAWING AFFECTED: 89-41002, & 8-43043, 35-41002, AND 35-41019. ALTHOUGH THE 27-XXXXX DRAWINGS COULD NOT BE CHANGED, 6D/C MANUFACTURING AGREED NOT TO ADJUST TRIMMING RESISTORS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4547-F SMD SUBASSEMBLY 1	FAR 27-43185-3	631113	FACTORY	YES	60C	
FAILURE MODE-FAIL DURING OPERATION. THE SPIN-MOTOR ROTATION-DETECTOR (SMD) SUBASSEMBLY 1 (S/N 3169) FAILED IN THE FACTORY GIVING A NO-GO INDICATION. THIS EXACT CAUSE OF THE FAILURE WAS NOT DETERMINED. HOWEVER, FAILURES HAVE OCCURRED BECAUSE OF TOLERANCE BUILDUPS, TEMPERATURE SENSITIVITY, THE VOLTAGE DROP ACROSS CR-1, AND TESTING WITH A TEST SET INPUT SIGNAL, ALTHOUGH OPERATION MAY BE CORRECT WHEN A GYRO SMD SIGNAL IS USED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
							893602
	CORRECTIVE ACTION-IT WAS RECOMMENDED THAT CR-1 AND CR-2 ON SUBASSEMBLY 1 BE REMOVED. THESE INPUT DIODES WERE INCORPORATED TO PROVIDE A GROUND TEST INPUT WHICH IS NO LONGER USED. THEY CAN BE REMOVED WITHOUT LOSS OF CIRCUIT PERFORMANCE. HOWEVER, THIS WAS REJECTED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4308-F SMRD SUBASSEMBLY ONE	FAR 27-43189-3	631111	FACTORY	YES NO	60/C	893396
	FAILURE MODE-SHORT, ELECTRICAL. THE MODULE HAD NO OUTPUT DUE TO A SHORT IN DIODE CR2. THE DIODE WAS DESTROYED DURING ANALYSIS MAKING IT IMPOSSIBLE TO LEARN THE CAUSE OF THE SHORT CIRCUIT.						
	CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4534-C DISPLACEMENT GYRO	FAR 7-04290-3	75P 631111	FACTORY	YES NO	NEARPOIT	891936
	FAILURE MODE-OUT OF TOLERANCE. DURING GYRO ASSEMBLY TESTING THREE GYROS WERE REJECTED FOR HAVING A HIGH DRIFT.						
	CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT KNOWN SINCE FAILURE ANALYSIS WAIVED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4573-F SIGNAL AMPLIFIER	FAR 27-41379-613	631108	FACTORY	YES NO		892560
	FAILURE MODE-FAIL DURING OPERATION. THE SIGNAL AMPLIFIER WAS REJECTED WHEN THE BOARD WAS SUSPECTED OF BEING HEAT SENSITIVE DURING ROLL DISPLACEMENT GAIN TESTS. THIS REPORTED FAILURE WAS NOT CONFIRMED SINCE FUNCTIONAL TESTING REVEALED NO DISCREPANCIES.						
	CORRECTIVE ACTION-NONE. NO CAUSE FOR THE REJECTION COULD BE FOUND.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4513-F SPIN-MOTOR ROTATION-DETECTOR, SMRD 27-43186-3 , SUBASSEMBLY 2	FAR	631111	FACTORY	YES NO		890799
	FAILURE FAILED TO OPERATE AT PRESCRIBED TIME. SMRD SUBASSEMBLY 2 REPORTEDLY FAILED AT THE 60/C FACTORY WHEN IT HAD NO OUTPUT. SUBSEQUENT TESTING REVEALED THAT THE UNIT HAD NO OUTPUT, HOWEVER, AFTER THE UNIT WAS PARTIALLY DEPOTTED A NO RETESTED. NO FAILURE WAS EVIDENT. THE UNIT WAS SUBJECTED TO EXTENSIVE VIBRATION AND TEMPERATURE ENVIRONMENT TESTS AND NO FAILURE WAS OBSERVED.						
	CORRECTIVE ACTION-NO CORRECTIVE ACTION COULD BE TAKEN SINCE THE FAILURE MODE WAS NOT IDENTIFIED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE OF	SITE TIME OF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4334-F 3MRD BANDPASS FILTER	FAR 27-04949-3	831107	FACTORY	YES	APPLIED COMPO NO ENTS ACI-3024
<p>FAILURE MODE-OUT OF SPECIFICATION. THE BANDPASS FILTER FAILED IN THE FACTORY WHEN THE ATTENUATION AT 725 CPS WAS FOUND TO BE ONLY 2 DB GREATER THAN THE ATTENUATION AT 918 CPS. THE SPECIFICATION REQUIRES AN ATTENUATION AT LEAST 3 DB GREATER. IT WAS DETERMINED THAT THIS REQUIREMENT WAS ADDED TO THE SPECIFICATION AFTER THIS BANDPASS FILTER HAD PASSED ITS ORIGINAL RECEIVING INSPECTION. TESTS.</p>						
<p>CORRECTIVE ACTION-ALL BANDPASS FILTERS IN STOCK AND IN KIT'S WERE FUNCTIONALLY RETESTED. THOSE THAT DID NOT MEET THE NEW SPECIFICATION REQUIREMENT WERE REJECTED.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4346-F DISPLACEMENT GYRO	FAR 7-04230-803	831106	FACTORY	NO	KEARFOOT NO CT02306000
<p>FAILURE MODE-FAIL DURING OPERATION. THIS DISPLACEMENT GYROSCOPE HAD NO SPIN-MOTOR ROTATION DETECTOR (3MRD) OUTPUT DURING ELECTRICAL TESTS OF THE AUTOPILOT. THE REPORTED FAILURE WAS NOT CONFIRMED. HOWEVER, AN INTERMITTENT CONNECTION WAS FOUND IN THE 3MRD MONITORING LINES OF THE GYRO PACKAGE TEST SET. THIS MOST PROBABLY CAUSED THE REPORTED FAILURE.</p>						
<p>CORRECTIVE ACTION-THE DEFECTIVE CONNECTION IN TEST SET WAS REPAIRED.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4323-F ROLL TRANSDUCER	FAR 97-93900-028	831106	FACTORY	YES	CRESCENT NO MC-4-141
<p>FAILURE MODE-SHORT, ELECTRICAL. THE ROLL TRANSDUCER REPORTEDLY FAILED AT 60/C FACTORY DURING MANUFACTURING TESTS WHEN A SHORT CIRCUIT WAS DISCOVERED BETWEEN THE CENTER TAP AND CASE. FAILURE WAS CAUSED BY INSUFFICIENT INSULATION ON THE INSIDE OF THE CASE.</p>						
<p>CORRECTIVE ACTION-THE VENDOR INITIATED CORRECTIVE ACTION EFFECTIVE WITH 8/N A18273 BY VACUUM POTTING THE INSULATION WITH EPOXYLITE 8203.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4342-F RATE GYRO	FAR 27-04374-3	831104	FACTORY	YES	MONEYWELL NO JRS101A2
<p>FAILURE MODE-OUT OF SPECIFICATION. THIS RATE GYRO WAS REJECTED WHEN THE TORQUE CALIBRATION READING WAS LOW AND OUT OF SPECIFICATIONS. THIS REPORTED FAILURE WAS NOT CONFIRMED. SOME OTHER COMPONENT MALFUNCTION MAY HAVE CAUSED THIS FAILURE, BUT THIS COULD NOT BE CONFIRMED.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VEHICLE NAME VEHICLE PART NO	
CORRECTIVE ACTION-NONE. NO CAUSE OF THE FAILURE COULD BE FOUND.							893391
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4809F SARD SUBASSEMBLY ONE	FAR 27-43185-3	831104	FACTORY	YES	60/C NO	892918
FAILURE MODE-OUT OF TOLERANCE. THE MODULE WOULD NOT CALIBRATE DURING NEXT ASSEMBLY TESTING.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4512-F SPIN-MOTOR ROTATION-DETECTOR, SARD 27-43186-3 , SUBASSEMBLY 2	FAR	831104	FACTORY	YES	NO	890800
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SARD SUBASSEMBLY 2 REPORTEDLY FAILED AT THE 60/C FACTORY WHEN IT OVERHEATED. SUBSEQUENT TESTING REVEALED THAT THE UNIT HAD NO OUTPUT WHEN CALIBRATED WITH THE RESISTANCE RANGE ALL OIUED FOR CALIBRATION (50-274 KILOHMS), HOWEVER, WHEN USING 300 KILOHMS, THE UNIT OUTPUT WAS NORMAL. OVERHEATING CAUS ED THE UNIT TO REQUIRE A HIGHER CALIBRATION RESISTANCE, BUT NO CAUSE FOR THE OVERHEATING COULD BE FOUND.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION COULD BE TAKEN AS NO CAUSE FOR THE SUBASSEMBLY TO OVERHEAT WAS FOUND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4465-F RATE GYRO	FAR 27-04574-3	831102	FACTORY	YES	INNEAPOLIS-HO NO MEYHILL JRS 101A2	891426
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYRO WAS REPORTEDLY FAILED WHEN THE SPIN-MOTOR ROTATION-DETECTOR (SARD) WAS INDICATING 0.2 VOLT WHEREAS THE MINIMUM ALLOWABLE WAS 0.5 VOLT. CAUSE OF FAILURE WAS A DEMAGNETIZED SARD MAGNET. CA USE OF DEMAGNETIZED SARD MAGNET UNKNOWN.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN. ALL THE AVAILABLE INFORMATION ON THE PROBLEM WAS EVALUATED, AND CONCL USIONS CAN NOT BE MADE REGARDING THE EXACT CAUSE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AX63-0003-2850/FC-CO-01-0017-011 AMPLIFIER	COMPOSITE-FACTORY	2850	FACTORY	NO	60/C NO	
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. WHEN THE ROLL GYRO WAS UNGROUNDED AT 60 SECONDS (NEGATIVE ROLL GYRO BIASING) THE GYRO WAS STILL TORQUING. THE ROLL GYRO NULLING AMPLIFIER (AGE) WAS FAULTY CAUSING AN EXTENDED TORQUING DURATION.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI DIF OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-REPLACED AGE ROLL GYRO MULLING AMPLIFIER.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4548F SARD SUBASSEMBLY 2	FAR 27-43186-3	631101	FACTORY	YES NO	
FAILURE MODE-FAIL DURING OPERATION. THE SPIN MOTOR ROTATION-DETECTOR (SARD) SUBASSEMBLY 2 (S/N 3324) FAILED AT THE FACTORY, GIVING A NO-60 INDICATION. THIS REPORTED FAILURE COULD NOT BE CONFIRMED.						
CORRECTIVE ACTION-NONE. A PREVIOUSLY SUBMITTED ECP FOR IMPROVEMENT OF THE SARD CIRCUITRY, SPECIFICATIONS, AND TEST EQUIPMENT WAS CANCELLED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4548-F SARD SUBASSEMBLY 2	FAR 27-43186-3	631101	FACTORY	YES NO	
FAILURE MODE-FAIL DURING OPERATION. THE SPIN-MOTOR ROTATION-DETECTOR (SARD) SUBASSEMBLY 2 (S/N3286) FAILED AT THE FACTORY GIVING A NO-60 INDICATION. THIS REPORTED FAILURE COULD NOT BE CONFIRMED.						
CORRECTIVE ACTION-NONE. A PREVIOUSLY SUBMITTED ECP FOR IMPROVEMENT OF THE SARD CIRCUITRY, SPECIFICATIONS AND TEST EQUIPMENT WAS CANCELLED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-90-04-4805F GYRO	FAR 27-41002-855	109F 631101	WTR	YES NO	
FAILURE MODE-OUT OF TOLERANCE. THE MAIN GYRO CAN WAS REJECTED FOR HIGH PITCH TORQUING GAINS.						
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4889-F RATE GYRO	FAR 27-04374-1	631101	FACTORY	YES NO	YES NO
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYRO WAS FAILED WHEN THE UNIT WAS OBSERVED TO HAVE HIGH IN-PHASE MULL. THE IN-PHASE MULL VOLTAGE WAS 16.6 MILLIVOLTS, SPECIFICATIONS CALL FOR A MAXIMUM OF 13 MILLIVOLTS. THE UNIT WAS DISASSEMBLED AND A DISTORTED GEAR/DRIVE CAUSED BY MECHANICAL SHOCK WAS OBSERVED. THE SOURCE OF SHOCK COULD NOT BE FOUND.						
CORRECTIVE ACTION-IN 1962 IN-PLANT HANDLING AND ASSEMBLY PROCEDURES TO PREVENT EXCESSIVE SHOCK WERE INSTITUTED. HOW EVER, THIS GYRO WAS RECEIVED IN AUGUST 1963, AND COULD HAVE BEEN DAMAGED AT ANY TIME AFTER ITS RECEIPT.						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PHI OTM	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LY-99-04-4348-F TORQUE AMPLIFIER	PAR 27-41946-807	83103 831029	FACTORY	YES NO		992831
FAILURE MODE-OUT OF SPECIFICATION. THE TORQUE AMPLIFIER FAILED IN THE FACTORY WHEN IT WOULD NOT CALIBRATE PROPERLY. THIS REPORTED FAILURE WAS NOT CONFIRMED AS ANALYSIS REVEALED THAT THE TORQUE AMPLIFIER COULD BE CALIBRATED AND FUNCTIONALLY TESTED.							
CORRECTIVE ACTION-NONE. THE REPORTED FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AX83-0003-133D/FC-00-02-0802-004 DISPLACEMENT SYNO	COMPOSITE-FACTORY	1330 831029	FACTORY	NO NO		999123
FAILURE MODE-FAIL DURING OPERATION. TELEMETRY DATA FOR MEASUREMENT 9420 (PITCH DISPLACEMENT GYRO) INDICATED TORQUE & AFTER SUSTAINED ENGINE CUTOFF.							
SYSTEM EFFECT-IMPROVED ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-THE AGE PITCH GYRO INPUT SELECT RELAY (M712) WAS REPLACED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4348-F SMD SUBASSEMBLY 2	PAR 27-43186-3	831023	FACTORY	YES NO		993326
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE SPIN-MOTOR ROTATION DETECTOR (SMD) SUBASSEMBLY 2 (S/M 3310) FAILED AT THE FACTORY GIVING A NO-60 INDICATION. THIS REPORTED FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-NONE. A PREVIOUSLY SUBMITTED ECP FOR IMPROVEMENT OF THE SMD CIRCUITRY, SPECIFICATIONS AND TEST EQUIPMENT WAS CANCELLED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4348-F SMD SUBASSEMBLY 2	PAR 27-43186-3	831023	FACTORY	YES NO		993363
FAILURE MODE-FAIL DURING OPERATION. THE SPIN-MOTOR ROTATION DETECTOR (SMD) SUBASSEMBLY 2 (S/M 3310) FAILED AT THE FACTORY GIVING A NO-60 INDICATION. THIS REPORTED FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-NONE. A PREVIOUSLY SUBMITTED ECP FOR IMPROVEMENT OF THE SMD CIRCUITRY, SPECIFICATIONS AND TEST EQUIPMENT WAS CANCELLED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.							

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4548-F SMD SUBASSEMBLY 2	FAR 27-43168-3	831025	FACTORY	YES NO		890900
FAILURE MODE-FAIL DURING OPERATION. THE SPIN-MOTOR ROTATION-DETECTOR (SMD) SUBASSEMBLY 2 (8/NO2819) FAILED AT THE 7 ACTORY GIVING A NO-60 INDICATION. THIS REPORTED FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-NONE. A PREVIOUSLY SUBMITTED ECP FOR IMPROVEMENT OF THE SMD CIRCUITRY, SPECIFICATIONS AND TEST E EQUIPMENT WAS CANCELLED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4310-F SMD, SUBASSEMBLY 2	FAR 27-43168-3	831025	FACTORY	YES NO		890900
FAILURE MODE-STRUCTURAL. THE SMD SUBASSEMBLY 2 FAILED WHEN AT THE 60/C FACTORY A NO-60 INDICATION WAS OBSERVED. THE FAILURE WAS ATTRIBUTED TO A POOR WELD JOINT AT THE CONNECTION OF PIN 3 TO THE SUBASSEMBLY-CIRCUITRY.							
CORRECTIVE ACTION-DESIGN REVIEW WAS CONDUCTED TO IMPROVE OVERALL MODULE ASSEMBLY AND ELIMINATE POSSIBLE TROUBLE SPOTS. CORRECTIVE ACTION INCLUDED ELIMINATION OF STACK WELDING, HOURLY CERTIFICATION OF WELD STATION. THE 8 POUND TENSILE STRENGTH REQUIREMENT WAS REPLACED TO A RANGE DETERMINED FROM A DISTRIBUTION CURVE FOR A PARTICULAR CONDITION OF MATERIALS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4511-F SPIN-MOTOR ROTATION-DETECTOR, SUBA 27-43168-3 ASSEMBLY 2	FAR 27-43168-3	831025	FACTORY	YES NO		890901
FAILURE MODE-FAIL DURING OPERATION. THE SMD SUBASSEMBLY 2 FAILED AT THE 60/C FACTORY WHEN A NO-60 INDICATION WAS OBSERVED. SUBSEQUENT TESTING ISOLATED THE FAILURE TO THE VICINITY OF TRANSISTOR 8-4. 8-4 WAS REMOVED INTACT AND NO DISCREPANCIES WERE FOUND. HOWEVER, FURTHER DEPOTTING OF THE UNIT DAMAGED IT TO SUCH AN EXTENT THAT FURTHER TESTING WAS NOT POSSIBLE.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION COULD BE TAKEN SINCE THE CAUSE OF FAILURE COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-90-04-4477-F SMD	FAR 27-72583-5	2240 831024	WTR	YES NO		
FAILURE MODE-ERRATIC OPERATION. DURING SYSTEM CHECKOUT TESTS, THE SPIN-MOTOR ROTATION DETECTOR (SMD) SIGNAL DROPPED OUT INTERMITTENTLY. AFTER SOME TROUBLE SHOOTING THE PROBLEM DISAPPEARED AND DID NOT RECUR. FURTHER TESTS AT SAN DIEGO DID NOT REVEAL ANY MALFUNCTIONS. ACTUAL FAILURE MODE NOT CONFIRMED.							
CORRECTIVE ACTION-SITE PERSONNEL WERE INFORMED VERBALLY OF THE PROGRESS OF ANALYSIS UNTIL LAUNCH OF 2240. NO OTHER							

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTM	VENDOR NAME VENDOR PART NO
ACTION WAS TAKEN BECAUSE THE REPORTED FAILURE COULD NOT BE CONFIRMED AFTER EXTENSIVE TESTING.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4476-F GYRO, WARD	FAR 27-49049-807	224D 631024	WTR NO	NO NO	
FAILURE MODE-ERRATIC OPERATION. DURING SYSTEM CHECKOUT TESTS, THE SPIN-MOTOR ROTATION DETECTOR (WARD) SIGNAL DROPPED OUT INTERMITTENTLY. AFTER SOME TROUBLE SHOOTING, THE PROBLEM DISAPPEARED AND DID NOT RECUR. FURTHER TESTS AT SAN D 1660 BID NOT REVEAL ANY MALFUNCTIONS. ACTUAL FAILURE MODE NOT CONFIRMED. THE TWO-RATE GYRO PACKAGE WAS REPLACED.						
CORRECTIVE ACTION-FAILURE NOT CONFIRMED-SITE PERSONNEL WERE INFORMED VERBALLY OF THE PROGRESS OF ANALYSIS UNTIL LAUNCH OF 224D. NO OTHER ACTION WAS TAKEN BECAUSE THE REPORTED FAILURE COULD NOT BE CONFIRMED AFTER EXTENSIVE TESTING.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A583-0003-2330/PC-CO-0013-014 AMPLIFIER	COMPOSITE-FACTORY 233D 631021			NO NO	
FAILURE MODE-FAIL DURING OPERATION-THE ROLL DISPLACEMENT GYRO REMAINED AT ITS POSITIVE LIMIT THROUGHOUT THE TEST DUE TO A FAULTY AGE ROLL MALLING AMPLIFIER.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED.						
CORRECTIVE ACTION-THE FAULTY AGE ROLL MALLING AMPLIFIER WAS REPLACED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4545-F TRANSISTOR 6-7 OF THE SIGNAL AMPLIFIER PIER	FAR 27-41379-813	631021	FACTORY	YES TEXAS INSTRUMENTS NO MT	
FAILURE MODE-SHORT (ELECTRICAL). THE SIGNAL AMPLIFIER FAILED BECAUSE OF A SHORT CIRCUIT BETWEEN THE CASE OF TRANSISTOR 6-7 AND ITS RETAINING CLIP. THE SHORT RESULTED BECAUSE THE TRANSISTOR WAS FORCED UP IN THE CLIP CREATING CONTACT BETWEEN THE LIP OF THE TRANSISTOR CASE AND THE LOWER EDGE OF THE RETAINING CLIP.						
CORRECTIVE ACTION-1. ALL APPLICABLE DRAWINGS OF THE SIGNAL AMPLIFIER WERE MODIFIED TO SHOW CORRECT ASSEMBLY OF THE TRANSISTOR AND RETAINING CLIP. 2. AN ELECTRICAL TEST IS ACCOMPLISHED TO VERIFY NO ACTUAL OR POTENTIAL SHORT CIRCUITS EXIST BETWEEN THE TRANSISTOR AND ITS RETAINING CLIP.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4485-C HARNESST-TRAY	FAR 27-72731-1	631021	FACTORY	YES 60/C NO	
FAILURE MODE-SHORT (ELECT.). THE HARNESST TRAY WAS IR/D FOR AN INSULATION BREAKDOWN BETWEEN ALIASPI PIN 14 TO GROUND. THERE WAS NO FAILURE ANALYSIS MADE ON THIS AS THIS UNIT IS PART OF P-UP DATE AND THERE IS NO CONTRACTUAL COVERAGE.						

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GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-NONE. NO ANALYSIS PERFORMED.						003403
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	CV-99-04-100-F RATE GYRO SHRD	FAR 55-41019-5	631019	FACTORY	NO	GO/C	002930
FAILURE MODE-OUT OF TOLERANCE. THREE-RATE GYROSCOPE GROUPS FAILED WHEN THEY HAD INSUFFICIENT SPIN MOTOR ROTATION DETECTOR OUTPUT. GYROSCOPE HAD LOW SHRD OUTPUT. TESTS INDICATED A DEMAGNETIZED SHRD MAGNET. THE SHRD MAGNET WAS DEMAGNETIZED BY INADVERTENT APPLICATION OF VOLTAGE TO THE SHRD OUTPUT PINS.							
	CORRECTIVE ACTION-NONE.						000764
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4319F ROLL-DISPLACEMENT GYRO HEATER-THER	FAR 55-41002-821	1350	FACTORY		KEARFOOT 123157-1	
FAILURE MODE-ERRATIC OPERATION. THE GYRO PACKAGE REPORTEDLY FAILED AT 60/C FACTORY WHEN THE ROLL-DISPLACEMENT GYRO COARSE HEATER THERMOSTAT WAS OPERATING INTERMITTENTLY. IT WAS DISCOVERED THAT A WRONG THERMOSTAT WAS INSTALLED BY VENDOR (KEARFOOT). SPECIFICATIONS CALLED FOR VENDOR P/N 123157-1. HOWEVER, THERMOSTAT INSTALLED HAD P/N 123157-5.							
CORRECTIVE ACTION-KEARFOOT REVIEWED ALL PARTS IN ASSEMBLY AREA TO INSURE CORRECT THERMOSTATS WERE INSTALLED. ALL PARTS IN STOCK WERE PROPERLY SEGREGATED, AND AN INSPECTION STEP WAS INSTITUTED IN GYRO ASSEMBLY PROCEDURE, WHEREBY THE PART NUMBER OF THE CORRECT THERMOSTAT IS VERIFIED.							002729
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4437-F ROLL DISPL. GYRO	FAR 55-41002-821	1350	FACTORY	YES	NO	
FAILURE MODE-FAIL DURING OPERATION. GYRO PACKAGE REPORTEDLY HAD NO SHRD OUTPUT. ROLL DISPLACEMENT GYRO HAD AN OPEN PHASE A WHICH WAS CAUSED BY TROUBLESHOOTING AND A METAL CHIP FROM THE SHRD MAGNET WAS LODGED BETWEEN THE WHEEL AND THE HOUSING, PREVENTING THE FLYWHEEL FROM TURNING.							
CORRECTIVE ACTION-USEFUL CORRECTIVE ACTION CAN NOT BE INITIATED BECAUSE THE ORIGINAL CAUSE FOR THE CHIPPING OF THE SHRD MAGNET IS UNKNOWN. THE GYRO VENDOR WILL MONITOR THE MAGNET INSTALLATION AND LOOK FOR CHIPS UNDER A MICROSCOPE WHILE INSPECTING THE SHRD ASST.							

GENE DYNAMICS
CONVAIR DIVISION

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4547-F TRANSFORMER	FAR 27-43185-3	931014	FACTORY	YES	THERMADOR NO
<p>FAILURE MODE-STRUCTURAL. FOUR TRANSFORMERS (S/N 112-0184, 011-0019, 112-0210, 009-0108) REPORTEDLY FAILED WHEN EACH TRANSFORMER WAS FOUND TO BE CRACKED ON ONE OR MORE CORNERS NEAR THE END OF THE INSERTS USED TO MOUNT THE TRANSFORMER.</p> <p>RE.</p> <p>CORRECTIVE ACTION-THERMADOR TRANSFORMERS WERE REMOVED FROM USE, PER CIC 07432, ECP 7432 DATED 83-09-16. TRANSFORMER P/N 27-04176 WAS SUBSTITUTED AS A REPLACEMENT.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4547-F SMRD SUBASSEMBLY 1	FAR 27-43185-3	931014	FACTORY	YES	50C NO
<p>FAILURE MODE-FAIL DURING OPERATION. THE SPIN-MOTOR ROTATION-DETECTOR (SMRD) SUBASSEMBLY 1 (S/N 3047) FAILED IN THE FACTORY GIVING A NO-GO INDICATION. THE EXACT CAUSE OF THE FAILURE WAS NOT DETERMINED. HOWEVER, FAILURES HAVE OCCURRED BECAUSE OF TOLERANCE BUILDUPS, TEMPERATURE SENSITIVITY, THE VOLTAGE DROP ACROSS CR-1, AND TESTING WITH A TEST SET INPUT SIGNAL ALTHOUGH OPERATION MAYBE CORRECT WHEN A GYRO SMRD SIGNAL IS USED.</p> <p>CORRECTIVE ACTION-IT WAS RECOMMENDED THAT CR-1 AND CR-2 ON SUBASSEMBLY 1 BE REMOVED. THESE INPUT DIODES WERE INCORPORATED TO PROVIDE A GROUND TEST INPUT WHICH IS NO LONGER USED. THEY CAN BE REMOVED WITHOUT LOSS OF CIRCUIT PERFORMANCE. HOWEVER, THIS WAS REJECTED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4547-F SMRD SUBASSEMBLY 1	FAR 27-43185-3	931014	FACTORY	YES	50C NO
<p>FAILURE MODE-FAIL DURING OPERATION. 1 (S/N 2988) FAILED IN THE FACTORY, GIVING A NO-GO INDICATION. EXACT CAUSE OF THE FAILURE WAS NOT DETERMINED. HOWEVER, FAILURES HAVE OCCURRED BECAUSE OF TOLERANCE BUILDUPS, TEMPERATURE SENSITIVITY, THE VOLTAGE DROP ACROSS CR-1 AND TESTING WITH A TEST SET INPUT SIGNAL ALTHOUGH OPERATION MAY BE CORRECT WHEN A GYRO SMRD SIGNAL IS USED.</p> <p>CORRECTIVE ACTION-IT WAS RECOMMENDED THAT CR-1 AND CR-2 ON SUBASSEMBLY 1 BE REMOVED. THESE INPUT DIODES WERE INCORPORATED TO PROVIDE A GROUND TEST INPUT WHICH IS NO LONGER USED. THEY CAN BE REMOVED WITHOUT LOSS OF CIRCUIT PERFORMANCE. HOWEVER, THIS WAS REJECTED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4547-F SMRD SUBASSEMBLY 1	FAR 27-43185-3	931014	FACTORY	YES	50C NO
<p>FAILURE MODE-FAIL DURING OPERATION. THE SPIN-MOTOR ROTATION DETECTOR (SMRD) SUBASSEMBLY 1 (S/N 2988) FAILED IN THE FACTORY GIVING A NO-GO INDICATION. THE EXACT CAUSE OF THE FAILURE WAS NOT DETERMINED. HOWEVER, FAILURES HAVE OCCURRED BECAUSE OF TOLERANCE BUILDUPS, TEMPERATURE SENSITIVITY, THE VOLTAGE DROP ACROSS CR-1 AND TESTING WITH A TEST SET INPUT SIGNAL ALTHOUGH OPERATION MAY BE CORRECT WHEN A GYRO SMRD SIGNAL IS USED.</p> <p>CORRECTIVE ACTION-IT WAS RECOMMENDED THAT CR-1 AND CR-2 ON SUBASSEMBLY 1 BE REMOVED. THESE INPUT DIODES WERE INCORPORATED TO PROVIDE A GROUND TEST INPUT WHICH IS NO LONGER USED. THEY CAN BE REMOVED WITHOUT LOSS OF CIRCUIT PERFORMANCE. HOWEVER, THIS WAS REJECTED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PR1 OTH	VENDOR NAME VENDOR PART NO
<p>093687</p> <p>WIND SIGNAL ALTHOUGH OPERATION MAY BE CORRECT WHEN A SYRO SMD SIGNAL IS USED.</p> <p>CORRECTIVE ACTION--IT WAS RECOMMENDED THAT CR-1 AND CR-2 ON SUBASSEMBLY 1 BE REMOVED. THESE INPUT DIODES WERE INCORPORATED TO PROVIDE A GROUND TEST INPUT WHICH IS NO LONGER USED. THEY CAN BE REMOVED WITHOUT LOSS OF CIRCUIT PERFORMANCE. HOWEVER, THIS WAS REJECTED BY THE AIRFORCE CHANGE BOARD 10 MARCH 1964.</p>						
<p>091937</p> <p>AUTOPLOT-SQUARE-A/B GYRO PACKAGE</p> <p>A-99-04-4322F SMD CIRCUIT BOARD</p> <p>FAR 27-43187-5</p> <p>031014 FACTORY</p> <p>FAILURE MODE-ELECTRICAL OPEN. THE SPIN-MOTOR ROTATION-DETECTOR HAD NO OUTPUT. THE FAILURE WAS CONFIRMED AND IS ATTRIBUTED TO A BROKEN WELD JOINT.</p>						
<p>091333</p> <p>AUTOPLOT-SQUARE-A/B GYRO PACKAGE</p> <p>LV-99-04-4387-F SMD LOGIC SUBASSEMBLY</p> <p>FAR 27-43187-5</p> <p>031014 FACTORY YES NO</p> <p>FAILURE MODE-SHORT (ELECTRICAL). THE SPIN-MOTOR ROTATION-DETECTOR (SMD) LOGIC SUBASSEMBLY FAILED WHEN IT HAD NO TELEMETRY OUTPUT. FAILURE WAS CAUSED BY THE TELEMETRY LEAD BEING LONG ENOUGH TO BEND OVER AND SHORT CIRCUIT TO THE 27.5 VDC RETURN BUS.</p> <p>CORRECTIVE ACTION-MANUFACTURING SPECIFICATION NO 43.70F IS IN PROCESS OF APPROVAL AND WILL STIMULATE AN HOURLY CERTIFICATION OF WELD STATIONS AND OTHER SPECIFICATION CHANGES TO IMPROVE WELDING QUALITY WHICH WILL PREVENT BROKEN WELD S.</p>						
<p>091017</p> <p>AUTOPLOT-SQUARE-A/B GYRO PACKAGE</p> <p>LV-99-04-4316-F SMD SYB ASSEMBLY 2</p> <p>FAR 27-43188-3</p> <p>031014 FACTORY YES NO</p> <p>CORRECTIVE ACTION-ASSEMBLY PERSONNEL WERE CAUTIONED CONCERNING PROPER USE OF MANUFACTURING TECHNIQUES AND RELATED AIDS. INSPECTION PERSONNEL WERE CAUTIONED ABOUT THE CRITICALITY OF SPACING TOLERANCES.</p> <p>FAILURE MODE-STRUCTURAL. THE SPIN MOTOR ROTATION DETECTOR REPORTEDLY FAILED AT THE 60/C FACTORY WHEN A NO 60 INDICATION WAS OBSERVED. FAILURE WAS CAUSED BY A BROKEN WELD JOINT ADJACENT TO JUNCTION OF PIN 3.</p> <p>CORRECTIVE ACTION-DESIGN REVIEW WAS CONDUCTED TO IMPROVE OVERALL MODULE ASSEMBLY AND TO ELIMINATE POSSIBLE TROUBLE SPOTS. NO-43-07, DATED 840319, CALLS FOR HOURLY CERTIFICATION OF WELD STATIONS AND ELIMINATION OF STACK WELDING.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

16 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4490-F SMRD MODULE	FAR 27-43185-3	931014	FACTORY	YES NO		890677
FAILURE MODE-OPEN ELECTRICAL. THE SMRD MODULE REPORTEDLY FAILED WHEN IT HAD NO OUTPUT. THE REPORTED FAILURE WAS CONFIRMED AND WAS ATTRIBUTED TO A BROKEN WELD JOINT.							
CORRECTIVE ACTION-CORRECTIVE ACTION WAS TAKEN TO PREVENT WELD JOINTS IN THE MODULES. THEY INCLUDED HOURLY CERTIFICATIONS OF WELD STATION AND ELIMINATION OF STACK WELDING.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4313F SMRD SUBASSEMBLY 2	FAR 27-43186-3	831014	FACTORY	YES NO		890797
FAILURE MODE-SHORT ELECTRICAL. THE SPIN-MOTOR ROTATION-DETECTOR (SMRD) REPORTEDLY FAILED AT THE GO/C FACTORY WHEN IT HAD NO OUTPUT. THE FAILURE WAS CAUSED BY PIN 2 SHORT CIRCUITING TO THE 27.5 VDC RETURN BUS. THE UNIT WAS NOT ASSEMBLED PER APPLICATION DRAWING, REQUIRING A MINIMUM DISTANCE OF 0.0003 INCH BETWEEN ANY TWO CONDUCTORS, OR THE USE OF NYLON TAPE WHERE ANY ACCIDENTAL SHORT CIRCUITING MAY OCCUR.							
CORRECTIVE ACTION-MANUFACTURING PERSONNEL WERE CAUTIONED TO FOLLOW VISUAL AIDS AND DRAWINGS EXACTLY, AND INSPECTORS WERE INSTRUCTED TO INCREASE VIGILANCE IN THIS AREA OF POSSIBLE FAILURES.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4439-F PITCH TORQUE AMPLIFIER TRANSDUCER	FAR 27-41002-927	1970 831012	FACTORY	YES NO		892720
FAILURE MODE-ELECTRICAL OPEN. THE GYRO PKG WAS IR/D WHEN THE TORQUING GAIN WAS OBSERVED TO BE LOW. CAUSE OF FAILURE WAS TRACED TO A LOOSE EMITTER LEAD OF THE DRIVER TRANSISTOR Q-6 (2N498) FURTHER ANALYSIS REVEALED THE TRANSISTOR CASE HAD BEEN PUNCTURED BY A SHARP INSTRUMENT CAUSING THE EMITTER LEAD TO BE TORN LOOSE. THE PUNCTURE HOLE HAD BEEN SEALED OVER WITH TORQUE PAINT.							
CORRECTIVE ACTION-TRANSISTOR, ITS CASE, AND THE HISTORY OF THE PROBLEM WERE TURNED OVER TO PLANT SECURITY OFFICERS FOR THEIR INVESTIGATION. NO FURTHER CORRECTIVE ACTION CAN BE TAKEN SINCE CIRCUMSTANCES SURROUNDING THE CAUSE OF FAILURE ARE NOT KNOWN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	LV-98-04-4383F GYRO	FAR 27-41002-927	1970 831012	ETR	YES NO		
FAILURE MODE-OUT OF TOLERANCE. EXCESSIVE ROLL DRIFT RATE. EXHAUSTIVE TESTING OF THE PACKAGE REVEALED NO OUT-OF-TOLERANCE OR MARGINAL DRIFT READINGS.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DAT. SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PR1 OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							001040
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AA83-0039/P3-4MO-01-187 DISPLACEMENT GYRO-ROLL	COMPOSITE-FRD/DPL 27-41002-927	1970 031011	13	YES NO		003782
FAILURE MODE-OUT OF EXPECTED TEST VALUE. THE ROLL DISPLACEMENT GYRO INDICATED A HIGH OPEN LOOP DRIFT RATE OF 29.5 D EG/HOUR INCREASING TO 31.5 DEG/HOUR AND 32.8 DEG/HOUR ON SUCCEEDING TESTS. SYSTEM EFFECT-OPERATION TOO HIGH. THE OPEN LOOP DRIFT RATE OF THE ROLL DISPLACEMENT GYRO WAS EXCESSIVELY HIGH. VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED. THE COUNTDOWN WAS DELAYED WHILE THE GYRO PACKAGE WAS REMOVED AND REPLACED.							
CORRECTIVE ACTION-GYRO PACKAGE 203-0275 (459) WAS REPLACED WITH THE BACKUP PACKAGE 209-0290 (478).							001030
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4321F SHRD CIRCUIT BOARD	FAR 27-43185-3	031011	FACTORY	YES NO		
FAILURE MODE-FAILED DURING OPERATION. THE SPIN-MOTOR ROTATION-DETECTOR (SHRD) HAD NO OUTPUT. THE FAILURE WAS CONFIRMED BUT THE MODULE WAS DESTROYED DURING DE-POTTING BEFORE THE CAUSE OF FAILURE COULD BE FOUND.							
CORRECTIVE ACTION-NONE SINCE THE CAUSE OF FAILURE COULD NOT BE DETERMINED.							003363
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4330-F SHRD TRANSISTOR	FAR 27-43230-3	031010	FACTORY	YES NO		
FAILURE MODE-FAILED DURING OPERATION. THE SPIN-MOTOR ROTATION-DETECTOR (SHRD) CIRCUIT BOARD FAILED AT THE FACTORY WHEN THE OUTPUT FROM MODULE P/N 27-43185-3 WAS FOUND TO BE DISTORTED. THIS WAS CAUSED BY DEFECTIVE TRANSISTOR Q-3. THE CAUSE OF THE TRANSISTOR FAILURE COULD NOT BE FOUND.							
CORRECTIVE ACTION-NONE. THE EXACT CAUSE OF THE TRANSISTOR FAILURE COULD NOT BE DETERMINED.							003466
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4367 SHRD	FAR 27-43229-3	031010	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE. SHRD BOARD 8/N 393 COULD NOT BE CALIBRATED. BOARD TAKEN TO RELIABILITY LAB WHERE IT WAS CALIBRATED. WHEN RETURNED IT FAILED. CR1 IN SUBASSEMBLY 1 CAN REDUCE THE INPUT SIGNAL TO A-1 SUFFICIENTLY TO CAUSE A BORDER LINE CONDITION.							
CORRECTIVE ACTION-CHANGE REQUEST TO AIRFORCE TO REMOVE CR-1 AND CR-2 WAS TURNED DOWN BY AFCS. NO FURTHER ACTION.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM- INBOME

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4467 BMD	FAR 27-43220-3	631007	FACTORY	YES	60/C NO	093463
FAILURE MODE-ERRATIC OPERATION. BMD BOARD S/N 374 WAS IN/O FOR ERRATIC OPERATION. THE PROBLEM WAS ISOLATED TO SUBA ASSEMBLY 1 IN CHANNEL 4. AFTER THREE MINUTES OF WARM UP THE BOARD FUNCTIONED NORMALLY. SUBASSEMBLY 1 IN CHANNEL 4 EXH IBITED TEMPERATURE SENSITIVITY.							
CORRECTIVE ACTION-A REQUEST TO AIR FORCE TO REMOVE CR-1 AND CR-2 ON SUBASSEMBLY 1 WAS CANCELLED BY AIR FORCE NO PUR THER.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	FPR F-5003-3P DISPLACEMENT GYRO	UTP-PET 7-04230-803	631007	60/C	YES	KEARFOY NO C70250600	091473
FAILURE MODE- STRUCTURAL. THE GYRO HAD ERRATIC DRIFT READINGS FOR MASS UNBALANCE ALONG THE SPIN REFERENCE AXIS. THI S WAS CAUSED BY A SMALL PLASTIC CHIP THAT WAS DISLODGED FROM THE SIGNAL GENERATOR STATOR. THIS CAUSED ERRATIC MOVEME NT OF THE GIMBAL.							
CORRECTIVE ACTION-THIS WAS CONSIDERED A RANDOM FAILURE AFTER THE UNIT WAS FAILURE ANALYZED. ALSO THE VENDOR TOOK SO ME PREVENTIVE STEPS IN PRODUCTION PROCEDURES BY INCREASING THE VISUAL INSPECTION AND ULTRA-SONIC CLEANING OF MACHINE D SUB-ASSEMBLIES.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4463-F DISPLACEMENT GYRO-HEATER	FAR 7-04230-903	631007	FACTORY	NO	KEARFOY NO C70-2306000	091424
FAILURE MODE-SHORT. THE GYRO HEATER RING LEADS WERE REPORTED SHORTED TO THE HOUSING, THEREBY CAUSING THE GYRO TO HE AT EXCESSIVELY. SUBSEQUENT FUNCTIONALLY TESTS OF THE GYRO (WITHOUT THE HEATER RING) REVEALED NO OUT OF TOLERANCE CON DITIONS. NO VALID CONCLUSIONS CAN BE MADE SINCE THE REPORTEDLY-FAILED HARDWARE WAS NOT RECEIVED WITH THE GYRO.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN SINCE THE GYRO WAS RECEIVED WITHOUT THE FAILED HEATER RING.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4526-F GYROSCOPE/RATE	FAR 27-04574-3	139F	FACTORY	YES	MONEYMELL NO UNKNOWN	
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYROSCOPE REPORTEDLY FAILED IN THE FACTORY WHEN IT HAD A LOW SPIN- MOTOR RO TATION-DETECTOR (BMD) OUTPUT. THE FAILURE WAS ATTRIBUTED TO A PARTIALLY DEMAGNETIZED BMD MAGNET WHICH RESULTED PRO IN AN EXTRANEOUS OR TRANSIENT VOLTAGE BEING APPLIED TO THE GYROSCOPE.							
CORRECTIVE ACTION-A CAPACITOR WAS DISCHARGED ACROSS THE MAGNET WINDING AND THE BMD OUTPUT WAS RAISED FROM 0.8 VOLT							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	TO 0.7 VOLT. SPECIFIED VALUE IS 0.5 VOLT MINIMUM. TEST EQUIPMENT OPERATORS WERE CAUTIONED ABOUT DAMAGE THAT CAN OCCUR TO SMD PICKOFF COILS.						891308
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-48187 SMD ASSEMBLY	FAR 27-43230-3	831003	FACTORY	YES NO	YES 50/C	893993
	FAILURE MODE-ERRATIC OPERATION-THE ASSEMBLY GAVE AN INTERMITTENT NO-60 SIGNAL ON THE FACTORY TEST SET. THE CONDITION DID NOT REPEAT AND THE CAUSE WAS NOT FOUND.						
	CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4588-F SMD	FAR 27-41703-809	1990 831003	FACTORY	YES NO		891354
	FAILURE MODE-FAIL DURING OPERATION. THE RATE GYROSCOPE GROUP REPORTEDLY FAILED WHEN THERE WAS NO YAW RATE SPIN-MOTO R ROTATION-DETECTOR (SMD) OUTPUT. THE FAILURE WAS ATTRIBUTED TO PARTIAL DEMAGNETIZATION OF THE SMD MAGNET CAUSED BY VOLTAGE TRANSIENTS ON THE SMD LINE.						
	CORRECTIVE ACTION-A SERIES OF GYROSCOPE TEST PROCEDURES WERE INITIATED CAUTIONING TEST EQUIPMENT OPERATORS ABOUT DAMAGE THAT CAN OCCUR TO SMD PICKOFF COILS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4827 AMPLIFIER RESISTOR	FAR 27-45202-801	831002	FACTORY	YES NO		893448
	FAILURE MODE-STRUCTURAL. YAW AMPLIFIER P/N 27-45202-3 SENSITIVITY WAS ERRATIC DUE TO AN INTERMITTENT FEEDBACK RESISTOR R-31. THE RESISTOR FAILED BECAUSE OF INADEQUATE STRESS RELIEF.						
	CORRECTIVE ACTION-A STRESS RELIEF REQUIREMENT WAS INCORPORATED INTO WPS 44-10C EFFECTIVE MAY 10, 1964.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-99-04-4468-F TRANSFORMER-INTERSTAGE ISOLATION	FAR 27-04180-3	831001	FACTORY	YES NO	YES AC ELECTRONICS	893464
	FAILURE MODE-SHORT. THE ISOLATION TRANSFORMER WAS IR/D FOR A SHORT FROM TERMINAL 1 TO GROUND. FAILURE ANALYSIS TESTING COULD FIND NO EVIDENCE OF ANY MALFUNCTION AS THIS UNIT WAS REMOVED FROM ITS NEXT ASSEMBLY. IT IS POSSIBLE THE FAILURE SOURCE WAS ELSEWHERE.						
	CORRECTIVE ACTION-NONE. NO FAILURE FOUND.						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4473-F SMD-FILTER	FAR 27-04846-3	830850	FACTORY	YES	ACI NO	893473
FAILURE MODE-OUT OF TOLERANCE. SMD UNIT FAILED TO INDICATE NO-GO WHEN TEST SIGNAL DROPPED TO TEST NO-GO. SMD FILT ER WAS IR/D AND REMOVED FROM NEXT ASSY. FAILURE ANALYSIS COULD NOT CONFIRM ANY FAILURE IN FILTER. POSSIBLE FAILURE C OULD HAVE BEEN IN NEXT ASSEMBLY COMPONENTS.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED BECAUSE NEXT ASSEMBLY CIRCUIT BOARD SERIAL NUMBER WAS NOT GIVEN. FOLL OW-UP ACTION CANNOT BE INITIATED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-99-04-4432-F RATE GYRO	FAR 27-04374-3	830830	FACTORY	NO	MONEYMELL NO	892724
FAILURE MODE-OUT OF TOLERANCE. RATE GYRO WAS IR/D WHEN THE OUTPUT OF THE ASSOCIATED EMITTER FOLLOWER AMPLIFIER WAS OBSERVED TO BE DISTORTED. THE RATE GYRO OUTPUT WAS FOUND TO BE NORMAL. FAILURE WAS IN EMITTER FOLLOWER. SEE FAR NZ-9 9-04-4433F.							
CORRECTIVE ACTION-NONE. GYRO HAD NOT FAILED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-99-04-4433-F AMPLIFIER CIRCUIT BOARD	FAR 27-45518-1	830830	FACTORY	YES NO		892726
FAILURE MODE-ERRATIC OPERATION. THE EMITTER-FOLLOWER AMPLIFIER CIRCUIT WAS IR/D FOR DISTORTED PITCH CHANNEL OUTPUT. FAILURE TRACED TO THE JOINT BETWEEN PIN 3 AND THE PRINTED CIRCUIT LAND WHICH DID NOT HAVE ANY SOLDER ON IT.							
CORRECTIVE ACTION-60/C MANUF. AND INSPECTION DEPTS. WERE REQUESTED TO ADHERE MORE CLOSELY TO ENG. SPEC D-79013 PARA . 8.2.1. THIS SPEC. REQUIRES JOINTS OF THIS TYPE BE SOLDERED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4472-F POWER SUPPLY DIODES	FAR 27-41382-3	830829	FACTORY	YES NO		
FAILURE MODE-SHORT (ELECT.). THE POWER SUPPLY CIRCUIT BOARD WAS IRD WHEN DIODES CR-4, CR-5, AND CR-6 REPORTEDLY SHO RTED TO THE HEAT SINK. FAILURE ANALYSIS SHOWED THE INSULATOR WASHERS USED TO INSULATE THE DIODES FROM THE HEAT SINK WERE MOUNTED OFF CENTER. THE PNEUMATIC RING INSULATING THE DIODES FROM THE CENTER OF THE RING WAS PUSHED OUT ALLOWING DIODE CASE TO SHORT TO CENTER OF HEAT SINK.							
CORRECTIVE ACTION-PRODUCTION AND INSPECTION PERSONNEL NOTIFIED OF CAUSE OF FAILURE. ALL INSTALLATIONS WILL BE MONIT ORED CLOSELY TO ASSURE THE FAILURE DOES NOT RECUR. ALSO TORQUE LIMITED TO 8 INCH-POUNDS TO AVOID FRACTURING THE DELI							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CATE MICA WASHERS.							093470
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4448-F SMRD-FILTER	FAR 27-04943-3	138D 630926	FACTORY	NO	ACI	092733
FAILURE MODE-ELECTRICAL OPEN. THE SMRD FILTER HAD NO OUTPUT. THE INPUT COIL WAS BURNED OPEN WHEN THE TEST SET PUT A REVERSE CURRENT THROUGH THE SMRD FILTER.							
CORRECTIVE ACTION-FAULTY TEST SET REPAIRED.							093592
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4610F SMRD SUBASSEMBLY TWO RESISTOR	FAR 27-43186-3	630927	FACTORY	YES	60/C	
FAILURE MODE-OUT OF TOLERANCE. THREE MODULES WERE REJECTED. S/N 3149 AND 3150 HAD NO OUTPUT. S/N 2432 FAILED DIODE TEST TWO. THE FAILURE OF S/N 2432 WAS NOT CONFIRMED. THE OTHER TWO FAILURES WERE CONFIRMED AND ATTRIBUTED TO A BUILD UP OF TOLERANCES. THESE MODULES WERE MADE TO WORK ON THE FACTORY TEST WITH CALIBRATION RESISTORS SLIGHTLY BELOW THE LOWER LIMIT OF SPECIFIED VALUE.							
CORRECTIVE ACTION-NONE. AN ECP TO CORRECT SMRD PROBLEMS WAS REJECTED.							093472
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4474-F DISPLACEMENT GYROS	FAR 7-04250-3	630927	FACTORY	Y:	TEARFOIT	
FAILURE MODE-STRUCTURAL. TWO DISP. GYROS IN/D FOR HIGH DRIFT. S/N 3937ABE HAD 9.47 DEG/HR AND S/N 3928ABE HAD 13.0 DEG/HR. SPEC. VALVE IS 3.0 DEG/HR. HIGH DRIFT CAUSED BY DISTORTED FLEX LEADS RESULTING FROM VOIDS IN THE FLUID MOVING 6 ACROSS AND DISTORTING THE LEADS.							
CORRECTIVE ACTION-ALL GYROS WITH THE LETTER F AFTER THE SERIAL NUMBER HAVE BAFFLES TO PREVENT VOIDS IN THE FLUID. 6 D/C PART NUMBER CHANGED TO-803 OR-801.							093467
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4469-F SMRD MODULE	FAR 27-43186-3	630927	FACTORY	YES	60/C	
FAILURE MODE-OUT OF TOLERANCE. THE SMRD MODULE REPORTEDLY FAILED WHEN IT WOULD NOT CALIBRATE. FUNCTIONAL TESTING DID NOT CONFIRM THE REPORTED FAILURE. NO TEST SET DISCREPANCIES COULD BE FOUND.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED. HOWEVER A STUDY IS BEING MADE TO LEARN THE REASON FOR ERRONEOUS SMRD MODULE REJECTIONS.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4449-F 3MRD MODULE	FAR 27-43186-3	630927	FACTORY	YES NO	YES NO
FAILURE MODE-ELECTRICAL OPEN. THREE 3MRD MODULES FAILED WHEN THEY HAD NO OUTPUTS (8/M 3121,3112,3136) ALL UNITS HAD A BROKEN WELD JOINT IN EACH MODULE.						
CORRECTIVE ACTION-ENTIRE WELDING PROCESS WAS REVISED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	3P-99-04-4447-C 3MRD NETWORK	FAR 27-43563-1	158D 630927	FACTORY	NO NO	NO NO
FAILURE MODE-ELECTRICAL OPEN. THE 3MRD NETWORK HAD NO OUTPUT. THE NETWORK WAS BURNED OPEN BY A FAULTY TEST SET WHICH APPLIED REVERSE VOLTAGE TO THE NETWORK.						
CORRECTIVE ACTION-FAULTY TEST SET WAS REPAIRED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	N2-99-04-4434F TORQUEM AMPLIFIER-TRANSISTOR	FAR 27-41378-815	630927	FACTORY	YES NO	YES NO
FAILURE MODE-ELECT. SHORT. THE TORQUEM AMPLIFIER WAS IN/D WHEN IT WAS OBSERVED A SHORT CIRCUIT EXISTED BETWEEN ONE OF THE AMPLIFIER HEAT SINKS AND THE COLLECTORS OF POWER TRANSISTORS Q-7 AND Q-8. THE REPORTED FAILURE WAS FOUND TO BE CAUSED BY A CRACKED MICA WASHER.						
CORRECTIVE ACTION-NO ACTION TAKEN AS SOURCE OF THE CRACK IN THE MICA COULD NOT BE DETERMINED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4479-F RATE GYRO	FAR 27-04574-3	630927	FACTORY	NO NO	MINNEAPOLIS-HO NO MEYNELL JRS-101AZ
FAILURE MODE-OUT OF TOLERANCE. 50/C RECEIVING INSPECTION REPORTED THAT TORQUING SENSITIVITY WAS 0.1125 DEGREE PER SECOND PER VOLT. MINIMUM ALLOWED IS 0.114 DEGREE PER SECOND PER VOLT. THE FAILURE WAS NOT CONFIRMED SINCE SUBSEQUENT TESTS INDICATED THAT THE TORQUING SENSITIVITY WAS WITHIN ACCEPTABLE TOLERANCE. THE GYRO COULD HAVE BEEN ERRONEOUSLY REJECTED DUE TO BLIGHT TEST SET DISCREPANCY SINCE RESULTS WERE BORDERLINE.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION REQUIRED. HOWEVER, PERSONNEL RESPONSIBLE WERE CAUTIONED TO TAKE MORE CAREFUL STEPS BEFORE REJECTING GYROs.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PR1 OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4488-F SMD MODULE TRANSISTOR	FAR 27-43186-3	630827	FACTORY	YES NO		891487
FAILURE MODE-OPEN (ELECTRICAL). THE SMD MODULE HAD NO OUTPUT. THE MODULE WAS DEPOTTED AND THE CAUSE OF THE FAILURE WAS ISOLATED TO TRANSISTOR Q-3 (2N738 MADE BY TEXAS INSTRUMENTS). ANALYSIS INDICATED THAT AN EXTERNAL VOLTAGE CAUSE D THE FAILURE SINCE CIRCUIT OPERATION DOES NOT SUPPLY ENOUGH CURRENT THROUGH THE BASE OF Q3 TO BURN IT OPEN. THE SOURCE OF THE EXTERNAL VOLTAGE WAS NOT FOUND.							
CORRECTIVE ACTION-SINCE THE SOURCE OF EXTERNAL VOLTAGE WAS NOT FOUND, NO CORRECTIVE ACTION WAS TAKEN, HOWEVER, PRODUCTION AND TEST PERSONNEL WERE REQUESTED TO TAKE GREATER CARE WHEN TESTING MODULES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4530-F HEATER/RATE GYRO	FAR 27-04374-3	630826	FACTORY	YES MONEYMELL NO UNKNOWN		891303
FAILURE MODE-CONTAMINATION. THE RATE STROSCOPIC FAILED WHEN THE HEATER WINDING WAS REPORTEDLY OPEN CIRCUITED. THIS FAILURE WAS ATTRIBUTED TO CONTAMINATED THERMOSTAT CONTACTS WHICH PROVIDED AN INSULATING SURFACE PREVENTING HEATER OPERATION.							
CORRECTIVE ACTION-SINCE THIS WAS THE FIRST FAILURE OF THIS KIND THE ONLY CORRECTIVE ACTION TAKEN WAS TO NOTIFY THE VENDOR OF THE THERMOSTAT CONTAMINANTS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4484-F RATE GYRO	FAR 27-04374-3	630824	FACTORY	YES MONEYMELL NO		893482
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYRO REPORTEDLY FAILED WHEN IT HAD EXCESSIVE MALLS. FAILURE ANALYSIS TESTING S COULD NOT CONFIRM ANY FAILURE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4420P GYRO AMPLIFIER-RESISTOR	FAR 27-41002-927	2160 630924	FACTORY	YES NO		893388
FAILURE MODE-STRUCTURAL. STROSCOPIC RES. WAS IR/D FOR NO OUTPUT FROM THE PITCH SIGNAL AMPLIFIER. RESISTOR R37 WAS FOUND TO HAVE A LOOSE LEAD INSIDE THE RESISTOR. THERE WAS NO STRESS RELIEF PROVIDED FOR THE RESISTOR LEADS AND A LEAD PULLED OUT.							
CORRECTIVE ACTION-WASA SPECIFICATION. NASC 1888 WAS CHANGED TO INCLUDE THE REQUIREMENT OF STRESS RELIEF FOR HAND SOLDERED COMPONENTS.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-440C DISPLACEMENT GYROSCOPE	FAR 7-04250-803	630923	FACTORY	YES	REARFOOT NO C70-2508-000	091169
FAILURE MODE-OUT OF TOLERANCE. ERRATIC READINGS IN DRIFT DUE TO MASS IMBALANCE ALONG THE SPIN AXIS OCCURRED DURING PRODUCTION EVALUATION TESTING.							
CORRECTIVE ACTION-NONE. ANALYSIS WAS CANCELLED. THE DISPLACEMENT GYROSCOPE WAS TAKEN TO THE VENDOR PLANT FOR TEARDO WN AND REPAIR.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4422-F ROLL-DISPLACEMENT GYRO	FAR 27-41002-855	486 630920	FACTORY	YES NO		092933
FAILURE MODE-STRUCTURAL. THE GYRO CANISTER WAS 18/0 WHEN IT HAD LOW 5MRD OUTPUT. THE ROLL DISPLACEMENT GYRO WAS FOU ND TO BE RUNNING BELOW SYNCHRONOUS SPEED. DISASSEMBLY SHOWED THE SPIN-MOTOR BEARING LUBRICANT HAD DRIED IN ONE BEAR T NG CAUSING EXCESSIVE WEAR.							
CORRECTIVE ACTION-A NEW BEARING LUBRICANT IS NOW BEING USED. THESE GYROS WILL HAVE A SUFFIX C IN THE VENDORS SERIAL NUMBER. THE FAILED UNIT SERIAL NUMBER DID NOT CONTAIN THE LETTER C AND DID NOT HAVE THE NEW TYPE LUBRICANT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4468-F RATE GYRO CANISTER	FAR 27-04374-3	630919	FACTORY	YES NO	MONTMELL	092927
FAILURE MODE-EXTERNAL LEAK. THE RATE GYRO WAS 18/0 FOR REPORTEDLY LEAKING OIL. THE GYRO WAS EXAMINED FOR OIL LEAKAG E. NONE WAS FOUND. HOT WATER AND IMMERSION VACUUM TESTS SHOWED NO LEAKAGE. GYRO OPERATED FUNCTIONALLY TO WITHIN SPEC IFICATION.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4328-F 5MRD SUBASSEMBLY 1	FAR 27-43185-3	630918	FACTORY	YES NO		091161
FAILURE MODE-OUT OF TOLERANCE. THE SPIN-MOTOR ROTATION-DETECTOR (5MRD) SUBASSEMBLY 1 (5MRD886) FAILED WHEN THE OUTPU T WAS ONE-HALF THE NORMAL FREQUENCY.							
CORRECTIVE ACTION-NONE. THIS REPORTED FAILURE WAS NOT CONFIRMED. EXHAUSTIVE TESTING REVEALED NO OUT-OF-SPECIFICATIO N VALUES AND NO TEST EQUIPMENT DISCREPANCIES WERE FOUND.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4329-F SHRD SUBASSEMBLY 1	PAR 27-43189-3	830918	FACTORY	YES NO		8931160
FAILURE MODE-OUT OF SPECIFICATION. THE SPIN-MOTOR ROTATION-DETECTOR (SHRD) SUBASSEMBLY 1 (892989) FAILED WHEN THE OUTPUT WAS ONE-HALF THE NORMAL FREQUENCY.							
CORRECTIVE ACTION-NONE. THIS REPORTED FAILURE WAS NOT CONFIRMED. EXHAUSTIVE TESTING REVEALED NO OUT-OF-SPECIFICATION VALUES AND NO TEST EQUIPMENT DISCREPANCIES WERE FOUND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4486-F RATE GYRO	PAR 27-04574-3	830918	FACTORY	YES NO	YES HONEYWELL NO J8310142	8906113
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYRO OUTPUT WAS REPORTED LOW. SUBSEQUENT TESTS REVEALED THAT THE AVERAGE SENSITIVITY WAS 0.1249 VOLT PER DEGREE PER SECOND. WHEREAS, THE LOW LIMIT FOR AVERAGE SENSITIVITY IS 0.19 VOLT PER DEGREE PER SECOND. THE FAILURE WAS ATTRIBUTED TO A SHORT CIRCUIT INTERNAL TO THE SIGNAL GENERATED SECONDARY WINDING. HOWEVER, DISASSEMBLY FAILED TO REVEAL THE SHORT.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION WAS TAKEN AS NO CAUSE FOR THE SHORT CIRCUIT COULD BE FOUND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4406-F GYRO PACKAGE-CONNECTOR	PAR 27-44534-801	2330 830918	FACTORY	YES NO		8934116
FAILURE MODE-STRUCTURAL. PKG WAS IR/D FOR NO ROLL SIGNAL AMPLIFIER ON LINE 305U J2-3. WHEN PKG. RCVD FOR ANALYSIS IN D OF THE J2 CONNECTOR WAS FOUND BENT AT AN ANGLE OF 30 DEGREES TOWARD SHELL. FUNCTIONAL TESTS ON PKG. SHOWED PROPER OPERATION. THE PIN WAS PROBABLY BENT DURING TRANSPORTATION OR DURING INSTALLATION.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE CAUTIONED TO BE EXTREMELY CAREFUL WHEN HANDLING AUTOPILOT PACKAGES IN ORDER TO PREVENT DAMAGE TO CONNECTORS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4478-F SHRD SUBASSEMBLIES NO. 2-TRANSISTOR	PAR 27-43189-3	830913	FACTORY	NO NO		
FAILURE MODE-FAIL DURING OPERATION. DURING FACTORY TESTING THE FOLLOWING THREE SHRD SUBASSEMBLIES NO. 2 REPORTEDLY HAD NO OUTPUTS. S/N 3093, S/N 3119, S/N 3103. THE OUTPUT TRANSISTOR FOR EACH UNIT WAS FOUND TO BE OPEN. INVESTIGATION IN THE PRODUCTION AREA REVEALED A POSSIBILITY OF APPLYING EXCESSIVE VOLTAGE TO THE OUTPUT TRANSISTOR DUE TO A PROBLEM OF CORRECTLY IDENTIFYING THE TRANSISTOR LEADS.							
CORRECTIVE ACTION-A PROCEDURE TO CORRECTLY IDENTIFY THE LEADS WAS INSTITUTED-THEREFORE THE VOLTAGE MISAPPLICATION HAS BEEN PREVENTED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AS BEEN ELIMINATED.							092826
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-99-04-104-F SARD-TRANSISTOR 8-1	FAR 55-41002-821	030903	FACTORY	YES	60/C NO	090993
FAILURE MODE-FAIL TO OPERATE. THE SPIN MOTOR ROTATION DETECTOR LAMP ON THE GYROSCOPE PACKAGE TEST SET FAILED TO ILLUMINATE AFTER APPLICATION OF GYROSCOPE SPIN MOTOR POWER. THE FAILURE IS ATTRIBUTED TO A HIGH VOLTAGE BEING IMPRESSED ON THE BASE OF TRANSISTOR 8-1. THE SOURCE OF THIS VOLTAGE COULD NOT BE FOUND.							
CORRECTIVE ACTION-NONE.							093461
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4461-F RATE-INTEGRATING/DISPLACEMENT	FAR 7-04250-803	138F 030903	FACTORY	YES	REARFOIT NO	
FAILURE MODE-OUT OF TOLERANCE. TWO FLOATED RATE-INTEGRATING GYROS (S/N201-2026 AND 203-2448) WERE IR/D FOR EXCESSIVE CROSS COUPLING INTO THE YAW AXIS. IT WAS DETERMINED THEIR INPUT NOTCHES WERE OUT OF ALIGNMENT. AFTER RESETTING GYRO OPERATED NORMALLY. THE INPUT NOTCHES HAD BEEN MOVED AFTER THEY WERE SET BY RECEIVING INSPECTION.							
CORRECTIVE ACTION-ALL PRODUCTION PERSONNEL CAUTIONED NOT TO ADJUST POSITIONING BRACKETS ON GYROS.							092940
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-111-F RATE GYRO	FAR 55-41010-3	030903	ETR	NO	NO	
FAILURE MODE-ERRATIC OPERATION. REMOTE-RATE GYROSCOPE PACKAGE FAILED WHEN THE TEST SET PITCH NULLED LAMP EXTINGUISHED INTERMITTENTLY AT A 6 TO 7 CPS RATE NO FAILURE IN GYROSCOPE PACKAGE FOUND. FAILURE WAS IN TEST SET.							
CORRECTIVE ACTION-NONE.							093208
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-120P DISPLACEMENT GYRO HEATER	FAR 55-41002-815	126D 030951	ETR	YES	60/C NO	
FAILURE MODE-OPEN (ELECT). THE MAIN GYRO CAN WAS REJECTED FOR LOW PITCH DISPLACEMENT GAIN AND AN INTERMITTENT 3 HED INDICATION. THE SARD NO-GO WAS NOT CONFIRMED. THE LOW GAIN WAS ISOLATED TO THE PITCH DISPLACEMENT GYRO. AN INTERMITTENT OPEN CIRCUIT WAS FOUND IN THE FINE HEATER WINDING. IT WAS SURMIZED THIS DISCREPANCY CAUSED THE LOW GAIN.							
CORRECTIVE ACTION-NONE. A STUDY WAS RECOMMENDED OF THE GYRO HEATER SPLICES.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4529-F GYROSCOPE/RATE	FAR 27-04374-3	830850	FACTORY	YES NO	MONEYWELL NO UNKNOWN	891304
FAILURE MODE-OUT OF SPECIFICATION. THE RATE GYROSCOPE FAILED WHEN HALL VOLTAGE OUTPUT WAS REPORTEDLY 1 VOLT. THE GYROSCOPE OPERATED WITHIN SPECIFICATIONS IN ALL TESTS TOTAL HALL WAS 9.0 MILLIVOLTS AND SPECIFICATIONS CALL FOR LESS THAN 25 MILLIVOLTS. THE REPORTED HALL VOLTAGE OF 1 VOLT WAS EXTREMELY HIGH AND PROBABLY ERRONEOUS.							
CORRECTIVE ACTION-NONE. THE REPORTED FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	LV-99-04-4475-F 3MRD-DIODE	FAR 27-43229-3	830829	FACTORY	NO NO		893473
FAILURE MODE-ELECTRICAL SHORT. THE 3MRD CIRCUIT BOARD REPORTEDLY FAILED WHEN A TOP PACKAGE FAILURE REPORTEDLY DAMAGED ALL SUBASSEMBLY-1, 3. INPUT DIODE (1M498) WAS FOUND SHORTED. CAUSED BY EXTERNAL APPLICATION OF HI-VOLTAGE.							
CORRECTIVE ACTION-NONE. SECONDARY FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4404-F 3MRD-MAGNET	FAR 27-04374-3	830829	FACTORY	NO NO		893136
FAILURE MODE-OUT OF TOLERANCE. RATE GYRO IR/D FOR LOW 3MRD OUTPUT. ANALYSIS FOUND A DEMAGNETIZED 3PIN MOTOR ROTATION DETECTOR MAGNET. FAILURES OF THIS TYPE ARE CAUSED BY EXTERNAL APPLICATION OF OVERVOLTAGE.							
CORRECTIVE ACTION-NONE. NO CONCLUSION COULD BE DRAWN FOR POSSIBLE CORRECTIVE ACTION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-99-04-099 RATE GYRO	FAR 38-41010-3	830829	FACTORY	YES NO		890989
FAILURE MODE-ELECTRICAL OPEN. RATE GYROSCOPE GROUP REPORTEDLY FAILED WHEN THERE WAS NO TORQUE OUTPUT IN THE ROLL CHANNEL. THE ROLL GYROSCOPE TORQUE WINDING AND TORQUE CALIBRATION RESISTOR WERE OPEN CIRCUITED. IT IS CONCLUDED, EXTRANEOUS VOLTAGE CAUSED THE OPEN CIRCUITS. HOWEVER, NO SOURCE OF THE EXTRANEOUS VOLTAGE FOUND.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION RECOMMENDED AS THE SOURCE OF EXTRANEOUS VOLTAGE COULD NOT BE FOUND.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4401-F ELAPSED-TIME INDICATOR	FAR 99-31900-003	930826	FACTORY	YES MAYDOON NO KES207		993453
FAILURE MODE-CONTAMINATION. ELAPSED-TIME INDICATOR FAILED DUE TO LACK OF UNION BETWEEN THE WORM GEAR AND THE SPUR GEAR. FURTHER INVESTIGATION REVEALED THAT DIRT AND OTHER PARTICLES CAUSED BINDING OF THE GEARS.							
CORRECTIVE ACTION-RECOMMENDATIONS TO VENDOR TO INSTALL BETTER QUALITY CONTROL TO INSURE DIE-CAST GEAR COMPONENT ARE FREE OF ALL CONTAMINATIONS WAS ACCOMPLISHED. ALSO, THE VENDOR INITIATED MORE EFFECTIVE CLEANING, BETTER DEBURRING PROCEDURES, AND CLOSER INSPECTIONS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4411 SWRD SUBASSEMBLY-1	FAR 27-43185-3	930826	FACTORY	NO 60/C NO		993150
FAILURE MODE-FAIL TO OPERATE. THREE SWRD SUBASSEMBLIES WERE IR/D WHEN NO OUTPUT COULD BE OBTAINED AT A SUPPLY VOLTAGE OF 25 VDC. SUBASSEMBLIES WERE TESTED BY FAILURE ANALYSIS AND FOUND GOOD. AFTER ADDITIONAL TESTS IT WAS DETERMINED THE RISE TIME OF THE TEST SIGNAL WAS OUT OF TOL. CAUSING MALFUNCTIONING OF SWRD CIRCUIT.							
CORRECTIVE ACTION-NONE. FAR A-99-04-3770 REQUESTED ADJUSTMENT OF WAVESHAPE OF THE SIMULATED SWRD SIGNAL.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	P3-4CO-03-187 RELAY	COMPOSITE-J FACT 27-04374-003	1970 930820	ETR	NO NO		993253
FAILURE MODE-OUT OF SPECIFICATION. YAW GYRO WOULD NOT MALL. AGE RELAYS CAUSED PROBLEM.							
SYSTEM EFFECT-OPERATION TOO HIGH. YAW GYRO WOULD NOT MALL.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-REPLACED AGE RELAYS AND AMPLIFIER.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4458-F RATE GYRO	FAR 27-04374-3	197-0 930820	FACTORY	YES HONEYWELL NO		993456
FAILURE MODE-OUT OF TOLERANCE. THE RATE-GYRO WAS IR/D FOR IN-PHASE MALL VOLTAGE OUT OF TOLERANCE. FAILURE ANALYSIS FOUND IN-PHASE MALL VOLTAGE TO BE 21.7M WHILE SPEC. CALLS FOR NO MORE THAN 15.0MV. NO ABNORMAL CONDITIONS COULD BE FOUND INSIDE GYRO TO ACCOUNT FOR THIS.							
CORRECTIVE ACTION-NONE. FAILURE COULD NOT BE CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	CT-88-04-087 GYRO-TRANSISTOR	FAR 35-41002-813	830806	ETR	YES NO		991006
FAILURE MODE-ELECTRICAL SHORT. GYROSCOPE PACKAGE FAILED DURING PERFORMANCE OF PROCEDURE 27-28856-BK7. A LOW TORQUE 6 GAIN IN THE ROLL CHANNEL WAS INDICATED. FAILURE IS ATTRIBUTED TO AN IMPROPERLY MOUNTED TRANSISTOR. IMPROPER MOUNTING WAS RESULTED IN A SHORT CIRCUIT FROM THE TRANSISTOR CASE TO THE HEAT SINK, BURNING TRANSISTOR COLLECTOR LEAD AND DESTROYING TRANSFORMER T-1.							
CORRECTIVE ACTION-NONE. IT WAS RECOMMENDED MANUFACTURING AND INSPECTION PERSONNEL BE INFORMED OF THIS FAILURE AND BE E INSTRUCTED IN THE PROPER METHOD OF MOUNTING THE 2N568 TRANSISTOR MOUNTING POSITION.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-90-04-4412-P SMRD	FAR 27-43802-801	3F 830804	WTR	NO NO	60/C	993149
FAILURE MODE-FAIL DURING OPERATION. THE GYRO PKG WAS IR/D WHEN A MOMENTARY SMRD NO 60 WAS OBSERVED. MOMENTARY FAILURE RE INDICATION WAS CAUSED BY SUPPLY VOLTAGE DROPPING TO 23 VDC WHEN VEHICLE INVERTER WAS STARTED.							
CORRECTIVE ACTION-BAR A-90-04-3771WRITTEN ASKING FOR AN INVESTIGATION OF THE POWER SUPPLY CAPACITY BE MADE. POWERSUP PLY RELOCATED TO MINIMIZE VOLTAGE DROP-NUMBER OF CELLS IN BATTERY CHANGED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4376-F RATE GYRO-CANISTER	FAR 27-41703-809	136D 830731	FACTORY	YES NO	60/C	898388
FAILURE MODE-FAIL DURING OPERATION. ROLL GYRO CASE RUPTURED AT TERMINAL END DURING TESTING. FAILURE WAS CONFIRMED DUE TO WIRES G AND J BEING REVERSED WHICH BYPASSED THE GYRO THERMOSTAT AND ALLOWED GYRO HEATING UNTIL THE CASE BURST AT THE SOLDERED BEAM.							
CORRECTIVE ACTION-60/C REVIEWED FACTORY INSPECTION PROCEDURES AND FOUND THEM ADEQUATE. PERSONNEL CONCERNED WERE REIN STRUCTED AND CONDITION IS CONSIDERED NON-REPETITIVE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	P1-CCO-01-136 SMRD	COMPOSITE-B FACT	136P 830730	ETR 412	NO NO		
FAILURE MODE-ERRATIC OPERATION. TELEMETRY MEASUREMENT 8384X1, SPIN MOTOR TEST OUTPUT, DEACTIVATED FOR 2 SECONDS. A V ALID INCORRECT SPEED INDICATION WOULD BE FOR 3 SECONDS. AN ELECTRICAL TRANSIENT IS SUSPECTED.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.							
VEHICLE EFFECT-NONE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTN	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-UNKNOWN.							897942
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4372-F FILTER-ELECTRICAL	FAR 27-04948-3	830730	FACTORY	YES	ACI NO	892314
FAILURE MODE-OUT OF SPECIFICATION. BANDPASS FILTER FAILED WITH OUTPUT VOLTAGE OUT OF SPECIFICATION. FAILURE WAS CONFIRMED DUE TO OUT OF SPECIFICATION CUTOFF. FAILURE RESULTED FROM ADDITION OF MORE STRINGENT CUTOFF REQUIREMENTS TO INCREASE SHRD RELIABILITY.							
CORRECTIVE ACTION-60/C RETESTED ALL FILTERS RECEIVED BEFORE FEBRUARY 1963 WHICH WERE STILL IN STOCK OR NEXT ASSEMBLY KITS. ALL FILTERS NOT MEETING NEW MORE STRINGENT CUTOFF REQUIREMENTS WERE REMOVED FROM STOCK.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4396-F RATE GYRO RESISTOR	FAR 27-04301-1	830729	FACTORY	YES	MONEYWELL NO JRT 114	893072
FAILURE MODE-OUT OF TOLERANCE. GYRO HAD NO OUTPUT. FAILURE WAS CONFIRMED DUE TO RESISTOR MISSING FROM PIN F TO PIN 7 IN GYRO. THE REASON FOR THE MISSING RESISTOR COULD NOT BE FOUND.							
CORRECTIVE ACTION-NONE. SINCE CAUSE OF THE MISSING RESISTOR WAS NOT FOUND AND JRT114 GYROS ARE BEING REPLACED AS THEY FAIL BY JRS 101A2 GYROS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4390-F SIGNAL GENERATOR/BEARING	FAR 7-04250-803	830724	FACTORY	YES	KEARFOTT NO C702304000	893026
FAILURE MODE-OUT OF TOLERANCE. DISPLACEMENT GYRO PERFORMANCE SHOWED LOW OUT OF SPECIFICATION SENSITIVITY. FAILURE WAS CONFIRMED DUE TO DEFECTIVE SIGNAL GENERATOR END THRUST BEARING. FAILURE CAUSED BY IMPROPER MANUFACTURE, ASSEMBLY AND INSPECTION OF THRUST BEARING.							
CORRECTIVE ACTION-VENDOR ACCOMPLISHED 100 PERCENT REINSPECTION FOR DIMENSIONS AND FOR BRAZED JOINT ON ALL THRUST BEARING IN STOCK. ALSO, 50 PERCENT OF THE STOCK WAS X-RAYED. NO REJECTIONS RESULTED FROM THIS REINSPECTION AND X-RAY PROGRAM. VENDOR INITIATED 100 PERCENT X-RAY INSPECTION ON NEW PROCUREMENT THRUST BEARINGS TO ASSURE PROPER SEATING OF THE INSERT.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4373-F DISPLACEMENT GYRO	FAR 7-04250-3	830719	FACTORY	YES	KEARFOTT NO C702304000	
FAILURE MODE-DRIFT. THREE GYROS EXHIBITED HIGH DRIFT DURING TEST. FAILURE WAS CONFIRMED ON ALL THREE GYROS DUE TO EXCESSIVE FIXED RESTRAINT DRIFT. BASED ON PART EXPERIENCE, FAILURES WERE CAUSED BY ONE OR MORE DISTORTED FLEXLEADS.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-ED/C INCORPORATED NEW HANDLING, WARMUP AND COOLDOWN REQUIREMENTS INTO GYRO PROCEDURES. VENDOR RED ESIGNED GYRO BY ADDING BAFFLES TO REDUCE FLEXLEAD FAILURES.						892319
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4373-F RATE GYRO-SMRD	FAR 27-04374-3	830719	FACTORY	YES NO	MONEYMELL JRS101AE	892315
	FAILURE MODE-OUT OF TOLERANCE. TWO GYROs HAD LOW SMRD OUTPUT. FAILURE WAS CONFIRMED BUT CAUSE OF FAILURE NOT DETERM INED BY FAILURE ANALYSIS.						
	CORRECTIVE ACTION-UNKNOWN. SMRD CIRCUIT REDESIGNED SINCE THIS OCCURRENCE.						892320
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4377-F TRANSFORMER-CANISTER	FAR 27-04395-3	830719	FACTORY	YES NO	THERMADOR	
	FAILURE MODE-STRUCTURAL. THREE TRANSFORMERS HAD CRACKED CASES ON ONE OR MORE CORNERS NEAR THE END OF THE MOUNTING I NSERTS. FAILURES WERE CONFIRMED DUE TO TRANSFORMER POTTING COMPOUND INDUCING STRESSES DURING TEMPERATURE CYCLING. NO ST PROBABLE CAUSE OF FAILURE IS POTTING COMPOUND STRUCTURALLY INSUFFICIENT UNDER TEMPERATURE CYCLING.						
	CORRECTIVE ACTION-ED/C REDESIGNED CIRCUIT (NEW 27-04176 TRANSFORMER SUBSTITUTED AS A REPLACEMENT).						890868
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-99-04-086-F SPIN MOTOR TRANSFORMER	FAR 27-41330-805	1160 830719	FACTORY	YES NO		
	FAILURE MODE-STRUCTURAL. SPIN MOTOR TRANSFORMER WAS FOUND CRACKED IN THREE CORNERS THREE OTHER TRANSFORMERS WERE RE JECTED AT THE SAME TIME FOR CRACKED CORNERS. FAILURE CONFIRMED. THE POTTING COMPOUND IS STRUCTURALLY INSUFFICIENT TO ENDURE REPEATED CYCLES OF TEMPERATURE CHANGE. TRANS- FORMER IS A RELATIVELY NEW TYPE. PREVIOUSLY BEING USED ONLY FO R THE MERCURY PROGRAM BECAUSE OF ITS HIGHER CURRENT CAPABILITY. NO ADDITIONAL SPACE IN THE GYROSCOPE PACKAGE WAS ALL OTTED FOR HEAVIER TRANSFORMER, WHICH WAS COMPOSED OF LESS POTTING MATERIAL SINCE WINDING WERE LARGER. TESTS INSTITUT ED BY THE APPRO- PRIATE DESIGN GROUP VALIDATED THIS CONCLUSION.						
	CORRECTIVE ACTION-THERMADOR TRANSFORMERS WERE REMOVED FROM USE, PER CIC 07542. ECP 7432, DATED SEPTEMBER 16, 1963. AND TRANSFORMER P/N 27-04176 WAS SUBSTITUTED AS A REPLACEMENT.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4395-F DISPLACEMENT GYRO-THERMOSTAT	FAR 7-04250-3	830717	FACTORY	YES NO	KEARFOY C7025J8000	
	FAILURE MODE-ERRATIC OPERATION. DISPLACEMENT GYRO HAD A STICKY THERMOSTAT IN HEATER CIRCUIT. FAILURE WAS CONFIRMED DUE TO BURNED AND PITTED CONTACTS. CAUSE OF DISCREPANT CONTACTS WAS NOT DETERMINED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTM	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-UNKNOWN.							993071
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-4383-F DISPLACEMENT GYRO	FAR 27-41002-909	197D 630710	WTR	YES NO	KESSEFOIT	992509
FAILURE MODE-STRUCTURAL. GYRO TEST SET SHOWED EXCESSIVE LOADING ON PHASE A OF 400 CPS 3-PHASE POWER SUPPLY. FAILURE OF ROLL GYRO 7-04250-3 CONFIRMED DUE TO SHORTED TO GROUND FLEXLEAD. BROKEN PHASE A FLEXLEAD CAUSED SHORT. ADDITIONAL FAILURE CONFIRMED IN HEATER CONTROL MAGNETIC AMPLIFIER DUE TO OPEN (SELECT) RESISTOR.							
CORRECTIVE ACTION-CD/L INCORPORATED NEW HANDLING REQUIREMENTS INTO GYRO PROCEDURES AND VENDOR REDESIGNED BAFFLES TO REDUCE FLEXLEAD FAILURES. VENDOR OF MAGNETIC AMPLIFIER INCORPORATED CHANGE FROM DEPOSITED-CARBON TO METALLIC-FILM RESISTORS IN CRITICAL POSITIONS OF THE CIRCUIT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	60/483-0478/C1-503-00-60	FLIGHT	69E 630703	576C 0.28	NO NO		998984
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UNGROUNDING OF GYRO SIGNAL OUTPUTS WERE LATE BECAUSE OF LATE SEPARATION OF AUTOPILOT UNBILICAL. SHOULD EJECT AT ONE INCH RISE. PROBABLY BROKEN LANYARD.							
SYSTEM EFFECT-OPERATION STARTS LATE. SLIGHTLY LATE ACTIVATION OF AUTOPILOT.							
VEHICLE EFFECT-NONE							
CORRECTIVE ACTION-NONE							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-4387-F AMPLIFIER-RESISTOR	FAR 27-72595-1	201D 630626	WTR	YES NO	MAGNETIC CONTR	992511
FAILURE MODE-OUT OF TOLERANCE. PITCH FINE HEATER OUTPUT OSCILLATED BETWEEN 7 AND 45 VAC. FAILURE CONFIRMED DUE TO FAILED RESISTOR R-14 IN FEEDBACK CIRCUIT OF HEATER CONTROL MAGNETIC AMPLIFIER. AGING OF RESISTOR CAUSED RESISTANCE VALUE TO SHIFT WELL OUTSIDE THE ALLOWABLE ONE-PERCENT TOLERANCE.							
CORRECTIVE ACTION-VENDOR REDESIGN INCORPORATED METALLIC-FILM RESISTORS IN PLACE OF DEPOSITED CARBON IN ALL CRITICAL POSITIONS OF THE MAGNETIC AMPLIFIER CIRCUIT.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4398-F SARD	FAR 27-41002-899	197D 630827	ETR	YES NO	60/C
FAILURE MODE-ERRATIC OPERATION. INTERMITTENT SARD DROPOUT DURING TEST. FAILURE NOT CONFIRMED IN EXTENSIVE TESTS. NO ST PROBABLE CAUSE OF FAILURE WAS TEST SET MALFUNCTION.						
CORRECTIVE ACTION-60/C REVALIDATED SITE TEST EQUIPMENT BUT NO DISCREPANCIES WERE DISCOVERED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4394-F SARD	FAR 27-43189-3	630825	FACTORY	YES NO	60/C
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. NO OUTPUT FROM SARD SUBASSEMBLY 1 DURING FIRST ELECTRICAL TEST APT ER PORTING. FAILURE NOT CONFIRMED BY EXTENSIVE TESTING. MOST PROBABLE CAUSE OF FAILURE IS TEST EQUIPMENT MALFUNCTION						
CORRECTIVE ACTION-FACTORY PERSONNEL INFORMED OF RESULTS OF ANALYSIS. NO FURTHER ACTION WAS TAKEN SINCE REPORTED FAI LURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4398-F AMPLIFIER-SARD	FAR 27-43189-3	630822	FACTORY	YES NO	60/C
FAILURE MODE-OUT OF TOLERANCE. NO OUTPUT FROM SARD SUBASSEMBLY 1 DURING FINAL ELECTRICAL TEST. FAILURE WAS CONFIRME D DUE TO INTERMITTENT CONDITION IN SIGNAL INPUT CIRCUIT. MOST PROBABLE CAUSE OF FAILURE WAS INADVERTENT APPLICATION OF HIGH VOLTAGE TO TEST INPUT THROUGH HUMAN ERROR.						
CORRECTIVE ACTION NONE, SINCE FAILURE ANALYSIS WAS INCONCLUSIVE AS TO CAUSE OF FAILURE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4398-F RATE GYRO	FAR 27-04574-3	630821	FACTORY	YES NO	HONEYWELL
FAILURE MODE-CONTAMINATION. GYRO EXHIBITED IN-PHASE NULL OF 17.53 MV WHERE 13.0 MV IS MAXIMUM ALLOWABLE. FAILURE WA S CONFIRMED DUE TO INTERNAL CONTAMINATION AND/OR MISHANDLING. CONTAMINATION MOST PROBABLY RESULTED FROM OXIDATION BU ILDUP AND UNCLEAN ASSEMBLY FACILITIES.						
CORRECTIVE ACTION-60/C REVIEWED VENDOR CLEAN ROOM FACILITIES AND FOUND THEM RECENTLY IMPROVED AND ADEQUATE AT THIS TIME. VENDOR STATED THAT NEW INDUCTION SOLDERING TECHNIQUES EMPLOYED IN ASSEMBLY MINIMIZED THE POSSIBILITY OF OXIAT ION CONTAMINATION.						

GENERAL DYNAMICS
CONVAIR DIVISION

19 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4363-F SMRD CIRCUIT BOARD	FAR 87-43830-801	830819	FACTORY	YES	60/C NO	892546
FAILURE MODE-ERRATIC OPERATION. BOARD WAS REJECTED BECAUSE OF HEAT-SENSITIVE OPERATION. FAILURE WAS NOT CONFIRMED (FAILURE ANALYSIS PERFORMED USING SUBSTITUTE CALIBRATING RESISTORS). REPORTED FAILURE WAS MOST PROBABLY CAUSED BY DISCREPANT CALIBRATION RESISTORS.							
CORRECTIVE ACTION-60/C REVISED CIRCUIT BOARD CALIBRATION PROCEDURE CLARIFYING THE CALIBRATION PROCESS SO THAT THE RISK OF SMRD BOARD FAILURE CAUSED BY INCORRECT CALIBRATION RESISTORS WAS MINIMIZED.							
AUTOPILOT-SQUARE A/B GYRO PACKAGE	SP-99-04-4361-F AMPLIFIER-RESISTOR	FAR 87-41330-803	830818	FACTORY	YES	MAGNETIC CONTR NO OLS	892321
FAILURE MODE-FAIL DURING OPERATION. PROPORTIONAL HEATER-CONTROL MAGNETIC AMPLIFIER FAILED AND ALLOWED THE YAW GYRO TO OVERHEAT. FAILURE WAS CONFIRMED DUE TO HEAT SENSITIVE DEPOSITED-CARBON FEEDBACK RESISTOR (R-14).							
CORRECTIVE ACTION-VENDOR REDESIGN INCORPORATED METALLIC-FILM RESISTORS IN PLACE OF DEPOSITED-CARBON IN ALL CRITICAL POSITIONS OF THE MAGNETIC AMPLIFIER CIRCUIT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4366-F DISPLACEMENT GYRO-SMRD	FAR 7-04250-803	830814	FACTORY	YES	KEARFOY NO 67023080.W	892310
FAILURE MODE-OUT OF TOLERANCE. DURING GYRO PACKAGE TESTS GYRO HAD LOW SMRD OUTPUT VOLTAGE. FAILURE WAS CONFIRMED BY CAUSE OF FAILURE NOT DETERMINED BY FAILURE ANALYSIS.							
CORRECTIVE ACTION-UNKNOWN. SMRD CIRCUIT REDESIGNED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4362-F RATE GYRO	FAR 87-04574-3	830813	FACTORY	YES	MOSBYWELL NO JR3101A2	892308
FAILURE MODE-OUT OF TOLERANCE. GYRO EXHIBITED LOW TORQUING SENSITIVITY. FAILURE WAS CONFIRMED DUE TO INCORRECT VENDOR CALIBRATION.							
CORRECTIVE ACTION-60/C AND VENDOR INVESTIGATED POSSIBLE TESTING DISCREPANCIES BY COMPARING TEST DATA OF SEVERAL GYROs. REVIEW OF 60/C AND VENDOR DATA AND TEST PROCEDURES REVEALED NO APPARENT TESTING DISCREPANCIES.							

13 JUN 1966

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VEHICLE NAME VEHICLE PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-99-04-4336-C CIRCUIT BOARD	FAR 7-04250-603	630613	FACTORY	YES NO	GO/C	891670
FAILURE MODE-ERRATIC OPERATION. GYRO REJECTED IN FACTORY CHECKOUT WHEN EMITTER FOLLOWER OUTPUT VARIED ERRATICALLY. FAILURE CONFIRMED IN SIGNAL AMPLIFIER CIRCUIT BOARD. FAILURE ANALYSIS NOT CONDUCTED.							
CORRECTIVE ACTION-NONE, SINCE CAUSE OF FAILURE WAS NOT FOUND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4344-F CIRCUIT BOARD SHRD	FAR 27-43185-3	630613	FACTORY	YES NO	GO/C	891662
FAILURE MODE-FAIL DURING OPERATION. SHRD SUBASSEMBLY 1 FAILED DURING ELECTRICAL TEST. FAILURE WAS CONFIRMED DUE TO DIODES CR-1 AND CR-2 BURNED OPEN AND CAPACITOR C-1 SHORT-CIRCUITED. MOST PROBABLE CAUSE OF FAILURE IS MISAPPLICATION OF EXCESSIVE VOLTAGE THROUGH HUMAN ERROR.							
CORRECTIVE ACTION-FACTORY TEST EQUIPMENT AND PROCEDURES WERE REVIEWED AND FOUND ADEQUATE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-99-04-4310-F CIRCUIT BOARD SHRD	FAR 27-43229-3	188D 630611	FACTORY	YES NO	GO/C	892100
FAILURE MODE-ELECTRICAL OPEN. DURING VIBRATION TESTS A SHRD NO-GO WAS RECEIVED. FAILURE CONFIRMED DUE TO INTERMITTENT ELECTRICAL OPEN. CAUSE OF FAILURE WAS POOR WELD BETWEEN OUTPUT PIN 5 OF SUBASSEMBLY 1 IN CHANNEL 3 AND THE WELD RIBBON.							
CORRECTIVE ACTION- GO/C WELD PROCESS SCHEDULES AND QC TESTS WERE REVIEWED AND FOUND ADEQUATE. THE EIGHT-POUND MINIMUM BREAKAGE STRENGTH OF EACH WELD AS REQUIRED BY MANUFACTURING PROCESS SPECIFICATION WAS CONSIDERED SUFFICIENT. GO/C INVESTIGATION AND EFFORT TO IMPROVE THE RELIABILITY OF WELDS IS CONTINUING. DESIGN MODIFIED TO ALLOW BETTER WELDS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4347-F SHRD CAPACITOR	FAR 27-43229-3	630610	FACTORY		GO/C	891321
FAILURE MODE-OUT OF TOLERANCE. SHRD CIRCUIT BOARD HAD INTERMITTENT OUTPUT DURING ELECTRICAL TEST. FAILURE WAS CONFIRMED DUE TO WRONG VALUES OF CAPACITORS C-3, C-4 AND C-5. FAILURE CAUSED BY INCORRECT ASSEMBLY.							
CORRECTIVE ACTION-GO/C REVISED ASSEMBLY TECHNIQUE BY INCORPORATING PART KITS FOR SHRD SUBASSEMBLIES IN LOT CONTROL SYSTEM IN ELECTRONICS MANUFACTURING AREA.							

18 JUN 1988

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A783-0003-1280/FC-CO-01-0303-003	COMPOSITE-FACTORY	1280	FACTORY	NO		893003
<p>FAILURE MODE-DRIFT. VERNIER NO. 1 PITCH/ROLL FEEDBACK VOLTAGE MONITORED ON BANBORN RECORDER CHANNEL 3 INDICATED AN UNEXPECTED 0.7 VOLT CHANGE IN LEVEL. THE PROBLEM WAS CAUSED BY A BROKEN WIRE WHICH CONNECTS P514 TO THE AGE ROLL GYRO GROUNDING CIRCUIT.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-REPAIRED DAMAGED HARNESS.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-4284F	FAR 27-41002-931	630606	FACTORY	NO		893045
<p>FAILURE MODE-OUT OF TOLERANCE. ROLL SLAVING INDICATION WAS LOW DURING CONFIDENCE TEST ON TEST SET TET3085-003. THE CANNISTER WAS ORIGINALLY CALIBRATED ON TET3085-004. WHEN THE CANNISTER WAS RETESTED ON TET3085-004, THE ROLL SLAVING WAS IN SPECIFICATION. THE FAILURE INDICATION ON TET3085-003 WAS CAUSED BY A TEST SET MALFUNCTION.</p> <p>CORRECTIVE ACTION-NONE.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-4328-F RATE GYRO	FAR 27-41703-809	1390 630606	MTR	YES NO	HONEYWELL	891860
<p>FAILURE MODE-FAIL DURING OPERATION. PITCH RATE GYRO (27-04574-3) EXHIBITED NO 8MRD OUTPUT DURING SYSTEM TESTS. FAILURE CONFIRMED DUE TO INTERNAL DAMAGE RESULTING FROM LEAKY COVER SOLDER BEAM.</p> <p>CORRECTIVE ACTION-VENDOR ALERTED PRODUCTION AND QC PERSONNEL TO FAILURE. VENDOR INITIATED 100-PERCENT LEAK TEST OF SIGNALS WITH HELIUM LEAK DETECTOR. GD/C AND VENDOR DEVELOPED NEW TECHNIQUES TO IMPROVE QUALITY OF SOLDER SEAMS. THESE GYROs WILL BE IDENTIFIED BY DASH NUMBER CHANGE (-3).</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-4317-F DISPLACEMENT GYRO	FAR 27-41002-913	1390 630606	MTR	NO YES		891346
<p>FAILURE MODE-FAIL DURING OPERATION. DURING SYSTEM CHECKS A 8MRD NO-GO OCCURRED IN REMOTE RATE GYRO PACKAGE AND DISPLACEMENT GYRO PACKAGE WAS REJECTED AS PART OF MATCHED SET. NO FAILURE IN DISPLACEMENT GYRO PACKAGE. SEE FAR SP-90-04-4328-F. FOR PRIMARY FAILURE.</p> <p>CORRECTIVE ACTION-NONE REQUIRED.</p>							

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1964

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4338-F CIRCUIT BOARD SHRD	FAR 27-43188-3	930805	FACTORY	YES	60/C NO	891667
FAILURE MODE-ELECTRICAL OPEN. SHRD SUBASSEMBLY 2 HAD NO OUTPUT. FAILURE CONFIRMED DUE TO POOR WELD JOINT BETWEEN THE PIN HOLDING ONE SIDE OF CALIBRATION RESISTOR AND WELD RIBBON.							
CORRECTIVE ACTION-60/C WELD PROCESS SCHEDULES AND QC TESTS WERE REVIEWED AND FOUND ADEQUATE. THE EIGHT-POUND MINIMUM BREAKAGE STRENGTH OF EACH WELD AS REQUIRED BY MANUFACTURING PROCESS SPECIFICATION WAS CONSIDERED ADEQUATE. 60/C IN VESTIGATION AND EFFORT TO IMPROVE THE RELIABILITY OF WELDS IS CONTINUING.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4338-F SHRD	FAR 27-43188-3	930803	FACTORY	YES	60/C NO	891668
FAILURE MODE-OUT OF TOLERANCE. SHRD SUBASSEMBLY HAD EXCESSIVE OUTPUT FROM FULL WAVE RECTIFIER. UNIT NOT FAILURE ANALYZED AND CAUSE OF FAILURE NOT DETERMINED.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT KNOWN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4355-F FILTER-ELECTRICAL	FAR 27-04948-3	930331	FACTORY	YES	ACI NO 3024	892503
FAILURE MODE-OUT OF TOLERANCE. FOUR BANDPASS FILTERS FAILED WITH OUTPUT VOLTAGE TOO HIGH AT THE LOW-FREQUENCY CUTOFF. FAILURE WAS CONFIRMED ON FOUR UNITS DUE TO OUT OF SPECIFICATION CUTOFF. FAILURES RESULTED FROM ADDITION OF MORE STRINGENT CUTOFF REQUIREMENTS TO INCREASE SHRD RELIABILITY.							
CORRECTIVE ACTION-60/C RETESTED ALL FILTERS RECEIVED BEFORE FEBRUARY 1963 WHICH WERE STILL IN STOCK OR NEXT ASSEMBLY KITS. ALL FILTERS NOT MEETING NEW MORE STRINGENT CUTOFF REQUIREMENTS WERE REMOVED FROM STOCK.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4343-F CIRCUIT BOARD SHRD	FAR 27-43233-803	930329	FACTORY	YES	60/C NO	891663
FAILURE MODE-OUT OF TOLERANCE. SHRD MODULE OUTPUT INSUFFICIENT TO INDICATE SHRD-60 CONDITION. FAILURE WAS CONFIRMED DUE TO OSCILLATORY NATURE OF SUBASSEMBLY. FAILURE CAUSED BY CALIBRATION PROCEDURES OF NEW CIRCUIT.							
CORRECTIVE ACTION-60/C ISSUED NEW EQUIPMENT OPERATING PROCEDURE FOR CALIBRATION AND INSTALLED NEW SHRD TEST SET IN FACTORY.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4345-F RATE GYRO SARD	FAR 27-04574-3	630327	FACTORY	YES NO	091323
FAILURE MODE-ELECTRICAL OPEN. DURING ELECTRICAL CHECK GYRO DID NOT COME UP TO RUNNING SPEED. IN FAILURE ANALYSIS SH 40 WINDING OPEN-CIRCUITED AND WAS FOUND TO BE SLIGHTLY BURNED. EXACT CAUSE NOT DETERMINED BY FAILURE ANALYSIS. MONEY WELL GYROS.						
CORRECTIVE ACTION-NONE, SINCE FAILURE ANALYSIS DID NOT DETERMINE EXACT CAUSE OF FAILURE.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4349-F SARD	FAR 27-43188-3	630327	FACTORY	YES 60/C NO	091319
FAILURE MODE-OUT OF TOLERANCE. SARD SUBASSEMBLY 2 EXHIBITED TIME BETWEEN PULSES OF PUL-WAVE RECTIFIED VOLTAGE WAS GREATER THAN ONE-HALF OF A PULSE WIDTH. FAILURE MOST PROBABLY CAUSED BY INCORRECT INPUT VOLTAGE IN SARD TEST SET.						
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. 60/C REVISED CHECKOUT PROCEDURE BY ADDING NOTE-IF PATTERN INDICATES A FAIL USE CONNECT OSCILLOSCOPE TO THE 269.A3 OUTPUT TERMINAL AND INSURE VOLTAGE IS 10 V P-P OR MORE BEFORE REJECTING PART UNDER TEST. THIS CHANGE WILL ELIMINATE REJECTIONS OF SUBASSEMBLIES DUE TO INSUFFICIENT TEST VOLTAGE.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4332-F WIRING	FAR 27-43158-817	630324	FACTORY	YES 60/C NO	631677
FAILURE MODE-STRUCTURAL. GYRO HARNESS TRAY FAILED INSPECTION WHEN SEVERAL LEADS SHOWED DAMAGED INSULATION. FAILURE CONFIRMED DUE TO IMPROPER ASSEMBLY TECHNIQUES.						
CORRECTIVE ACTION-60/C REVISED MANUFACTURING PROCESS SCHEDULE TIGHTENING REQUIREMENTS FOR TRAY WIRING CONSTRUCTION AND INSTALLATION. ADDITIONAL TRAINING WAS GIVEN TO PRODUCTION AND INSPECTION PERSONNEL. COMPLIANCE WITH NASA-APPROVED SOLDERING TECHNIQUES WAS EMPHASIZED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4346-F CIRCUIT BOARD SARD	FAR 27-43185-3	630322	FACTORY	YES 60/C NO	091322
FAILURE MODE-OUT OF TOLERANCE. SARD SUBASSEMBLY 1 HAD NO OUTPUT. FAILURE WAS CONFIRMED. CAUSE OF FAILURE NOT DETERMINED BY FAILURE ANALYSIS.						
CORRECTIVE ACTION-NONE, SINCE CAUSE OF SUBASSEMBLY FAILURE WAS NOT FOUND.						

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4313-F RATE GYRO	FAR 27-04574-3	930520	FACTORY	YES NO	HONEYWELL JR3101AS	092097
FAILURE MODE-OUT OF TOLERANCE. GYRO HALL MEASURED HIGH. FAILURE ANALYSIS INCOMPLETE AS RATE GYRO PACKAGE NOT AVAILABLE. MOST PROBABLE CAUSE OF FAILURE WAS CIRCUITRY EXTERNAL TO RATE GYRO.							
CORRECTIVE ACTION-NONE. FAILURE NOT VERIFIED ON GYRO AND FAILURE ANALYSIS INCOMPLETE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-99-04-4342-F CIRCUIT BOARD SHRD	FAR 27-43186-3	930514	FACTORY	NO NO	60/C	091664
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. SHRD SUBASSEMBLY HAD OUT OF TOLERANCE PULL WAVE RECTIFICATION WAVEFORM. FAILURE NOT CONFIRMED. FAILURE DUE TO TEST EQUIPMENT MALFUNCTIONING.							
CORRECTIVE ACTION-NONE, SINCE FAILURE OF Q-3 SHOULD BE CAUGHT IN THE PRE-ENCAPSULATION TEST OF 27-43186-3.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AX63-0003-2100/FC-CO-02-0013-011 AMPLIFIER	COMPOSITE-FACTORY	2100 930513	FACTORY	NO NO	157	099023
FAILURE MODE-FAIL DURING OPERATION. SUSTAINER AND VERNIER YAW ENGINE FEEDBACK TRACES INDICATED UNEXPECTED ENGINE MOVEMENTS AT YAW GYRO BIASING AT 157 SECONDS AND 239 SECONDS. A FAULTY YAW MULLING AMPLIFIER (AGE) CAUSED THE PROBLEM.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-AGE YAW MULLING AMPLIFIER WAS REPLACED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4312-F RATE GYRO	FAR 27-04574-3	930513	FACTORY	YES NO	HONEYWELL JR3101AS	092099
FAILURE MODE-STRUCTURAL. GYRO HAD LOW SENSITIVITY AT 0.188 VOLT/DEGREES/SEC WHEN 0.18 TO 0.21 VOLT/DEG/SEC IS REQUIRED. FAILURE CONFIRMED DUE TO DISTORTED GYRO/DRIVELEVERS. MOST PROBABLE CAUSE IS MECHANICAL SHOCK (HISHANDLING).							
CORRECTIVE ACTION-60/C REVIEWED FACTORY AND VENDORS HANDLING TECHNIQUES. PADDING ON WORKBENCHES ADDED IN FACTORY IN DEC. 1962. VENDOR HANDLING PROCEDURES FOUND ADEQUATE.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4277F SMRD SUBASSEMBLY ONE	FAR 27-43185-3	630510	FACTORY	YES NO	60/C	695294
FAILURE MODE-ELECTRICAL SHORT. THE MODULE HAD NO OUTPUT AFTER IT WAS POTTED. THE FAILURE WAS CAUSED BY A SHORT RESULTING FROM A DISCREPANT K/LAR INSULATOR.							
CORRECTIVE ACTION-ALL MYLAR INSULATORS TO BE INSPECTED FOR PROPER HOLE SPACING PRIOR TO POTTING OF THE MODULES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4269F RATE GYRO CAPACITOR	FAR 55-41019-3	630510	FACTORY	YES NO		695266
FAILURE MODE-STRUCTURAL. THE REMOTE RATE GROUP WAS REJECTED FOR INTERMITTENT OUTPUT. THIS WAS CAUSED BY CAPACITOR C104 HAVING EXPLODED DUE TO POSSIBLE INCORRECT APPLICATION OF VOLTAGE.							
CORRECTIVE ACTION-NONE. THE REASON FOR INCORRECT APPLICATION OF VOLTAGE WAS NOT LEARNED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4280F SMRD SUBASSEMBLY ONE	FAR 27-43185-3	630510	FACTORY	YES NO	60/C	692910
FAILURE MODE-OUT OF TOLERANCE. MODULE HAD NO OUTPUT AFTER BEING POTTED. FAILURE WAS CAUSED BY DEFECTIVE WELDS.							
CORRECTIVE ACTION-NONE. EXISTING PROCESS CONTROLS ARE ADEQUATE TO CORRECT DEFECTIVE WELDING PROCEDURES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4302-F RATE GYRO	FAR 27-45045-605	630507	ETR	YES NO		697763
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. RATE GYRO SPIN MOTOR DID NOT START UNTIL 30 MINUTES AFTER APPLICATION OF POWER. SILICONE FLUID WAS FOUND IN THE MOTOR ASSEMBLY.							
CORRECTIVE ACTION-VCAIR TO HONEYWELL TO INVESTIGATE IMPROVEMENT OF GYRO CASING SOLDER SEALS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4310-F DISPLACEMENT GYRO AMPLIFIER	FAR 27-41002-895	630507	ETR	YES NO	KEARFOIT	
FAILURE MODE-OUT OF TOLERANCE. ROLL DISPLACEMENT AVERAGE AMPLIFIER GAIN 0% OF TOLERANCE. FAILURE CONFIRMED BUT EXACT CAUSE NOT DETERMINED BY FAILURE ANALYSIS.							

GENERAL DYNAMICS
CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-NO CORRECTIVE ACTION ON GYRO SINCE CAUSE OF FAILURE NOT COMPLETELY DETERMINED.						001343
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4318-F DISPLACEMENT GYRO SHRD	FAR 27-43186-3	030307	ETR	YES NO		001170
	FAILURE MODE-ELECTRICAL OPEN. FAULTY WELD JOINT ON CATHODE OF CR-2 (1M498 DIODE).						
	CORRECTIVE ACTION-60/C WELD PROCESS SCHEDULES AND QC TESTS REVIEWED AND FOUND ADEQUATE. EIGHT POUND MINIMUM BREAKAWAY STRENGTH OF EACH WELD AS REQUIRED BY MANUFACTURING PROCESS SPECIFICATION CONSIDERED ADEQUATE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4309-F RATEGYRO SHRD	FAR 27-04374-3	030306	FACTORY	YES NO	JRS101A2	002101
	FAILURE MODE-OUT OF TOLERANCE. GYRO REJECTED FOR NO SHRD OUTPUT. FAILURE CONFIRMED DUE TO DEMAGNETIZED SHRD MAGNET. SOURCE OF VOLTAGE TRANSIENTS CAUSING DEMAGNETIZATION NOT DETERMINED.						
	CORRECTIVE ACTION-60/C INITIATED INSTRUCTIONS TO ELECTRONICS MANUFACTURING PERSONNEL WARNING THEM TO BE EXTREMELY CAREFUL NOT TO APPLY ANY VOLTAGE TRANSIENTS TO SHRD WINDINGS AS STUDIES HAVE SHOWN SHRD DEMAGNETIZATION IS CAUSED BY VOLTAGE TRANSIENTS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4262F SHRD SUBASSEMBLY TWO	FAR 27-43186-3	030303	FACTORY	YES NO		0013243
	FAILURE MODE-OUT OF TOLERANCE. THE MODULE WAS REJECTED FOR OUT OF TOLERANCE WAVEFORM.						
	CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AX63-0003-75D/FC-CQ-01-0008-003 DISPLACEMENT GYRO	COMPOSITE-FACTORY	75D 030303	FACTORY	NO NO		
	FAILURE MODE-FAIL DURING OPERATION-ENGINE RESPONSES AND TELEMETRY RECORDINGS OF THE DISPLACEMENT GYROS INDICATED THAT AT EXTRANEOUS INPUTS WERE PRESENT IN THE (AGE) GYRO MALLING LOOPS. AS A RESULT, THE REACTIVATION OF THE PROGRAMMER'S TAGING INTEGRATOR (STAGING PLUS 10 SECONDS) WAS MARKED.						
	SYSTEM EFFECT-NONE.						
	VEHICLE EFFECT-COMPOSITE RESCHEDULED. A SECOND COMPOSITE WAS REQUIRED.						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-A CAPACITOR WAS INSERTED INTO THE FLIGHT CONTROL (AGE) TO ISOLATE THE INPUT FROM THE 1888 A/P GYRO O DEMODULATOR IN THE SIGNAL CONDITIONER FROM THE MULLING LOOPS.							999329
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4259F RATE GYRO	FAR 99-41019-3	630301	FACTORY	YES NO		999329
FAILURE MODE-OUT OF TOLERANCE. REMOTE RATE GROUP WAS REJECTED FOR LOW ROLL RATE TORQUING GAIN RESULTING FROM AN ERR OR IN THE CALIBRATION PROCEDURE.							
CORRECTIVE ACTION-CALIBRATION PROCEDURE WAS CORRECTED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4311-F DISPLACEMENT GYRO WIRZ	FAR 7-04230-3	630301	FACTORY	YES NEARFOOT NO C70 2506 000		999329
FAILURE MODE-DRIFT. GYRO EXHIBITED EXCESSIVE FIXED RESTRAINT DRIFT AT 9.37 DEGREES PER HOUR WHERE MAXIMUM ALLOWABLE IS 3.0 DEGREES PER HOUR FAILURE CONFIRMED. PROBABLY DUE TO ONE OR MORE DISTORTED FLEXLEADS (KNOWN FAILURE MODE).							
CORRECTIVE ACTION-GO/C INCORPORATED NEW WARM-UP COOL-DOWN AND HANDLING REQUIREMENTS INTO PROCEDURES. VENDOR RE-DESIG NED GYRO BY ADDING BAFFLES NEAR FLEXLEADS TO REDUCE POSSIBILITY OF FLEXLEAD DISTORTION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4331-F SHRD	FAR 27-43186-3	630301	FACTORY	NO GO/C NO		999329
FAILURE MODE-OUT OF TOLERANCE. TWO SHRD SUBASSEMBLIES FAILED CHECKOUT WITH TIME BETWEEN PULSES OF THE FULL-WAVE REC TIFIED VOLTAGE GREATER THAN ONE-HALF OF A PULSE WIDTH. FAILURE FOUND CAUSED BY INCORRECT INPUT VOLTAGE IN SHRD TEST SET.							
CORRECTIVE ACTION-GO/C REVISED CHECKOUT PROCEDURE BY ADDING NOTE-IF PATTERN INDICATES A FAILURE, CONNECT OSCILLOSCO PE TO TIE 269. AS OUTPUT TERMINAL, AND INSURE VOLTAGE IS 10 V P-P OR MORE BEFORE REJECTING PART UNDER TEST. THIS CHA NGE WILL ELIMINATE REJECTIONS OF SUBASSEMBLIES DUE TO INSUFFICIENT TEST SET VOLTAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-99-04-082 GYRO	FAR 99-42001-877	1180 630429	ETR	YES GO/C NO		
FAILURE MODE-OUT OF TOLERANCE. PITCH AND ROLL PROGRAM BLAVING SENSITIVITIES WERE LOW. DUE TO A SHORTAGE OF GYROSCOP E PACKAGES. THIS PACKAGE WAS THEN PLACED ON MISSILE 116-D TO SUPPORT MISSILE TEST. REPORT FAILURE NOT CONFIRMED. SIN CE THE GYROSCOPE PACKAGE WAS PLACED ON A MISSILE TO SUPPORT MISSILE TEST AFTER REPORTED FAILURE, INSTEAD OF BEING RO UTED FOR FAILURE ANALYSIS, THE EXACT CONDITION OF THE GYROSCOPE PACKAGE AT THE TIME OF THE REPORTED FAILURE COULD NO T BE DETERMINED.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-RECOMMEND SITE PERSONNEL BE REQUESTED TO DISPOSITION FAILED ITEMS FOR FAILURE ANALYSIS, INSTEAD OF USING THEM TO SUPPORT MISSILE TEST.						899907
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-42567 DISPLACEMENT GYRO WIRE	FAR 87-78388-1	8120 830428	FACTORY	YES	60/C NO	893249
FAILURE MODE-STRUCTURAL. ROLL GYRO FAILED DURING TEST OF MISSILE 8120 BECAUSE OF BROKEN FLEX LEAD.							
CORRECTIVE ACTION-DISPLACEMENT GYROS WERE REDESIGNED INCORPORATING Baffles TO REDUCE FLEX LEAD DAMAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4348-F RATE GYRO	FAR 87-04374-3	830426	FACTORY	YES	MONEYWELL NO JRS101A2	891520
FAILURE MODE-OUT OF TOLERANCE. GYRO FAILED TO PASS PHASE ANGLE TEST IN ELECTRONICS MANUFACTURING AREA. MOST PROBABLE CAUSE IS TEST EQUIPMENT MALFUNCTION.							
CORRECTIVE ACTION-NONE, SINCE FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-42557 GYRO SUBASSEMBLY ONE	FAR 87-43185-1	1300 830424	FACTORY	YES	60/C NO	893496
FAILURE MODE-ELECTRICAL OPEN. OUTPUT REDUCED TO ZERO AS MODULE WAS HEATED. FAILURE DUE TO BAD WELD.							
CORRECTIVE ACTION-NONE. WELDER CERTIFICATION PROGRAM WAS NOT COMPLETED WHEN THIS UNIT WAS BUILT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-42737 DISPLACEMENT GYRO WIRING	FAR 7-04280-3	830424	FACTORY	YES	NEARFOOT NO	893290
FAILURE MODE-STRUCTURAL. THE GYRO HAD HIGH DRIFT DUE TO DISTORTED FLEX LEADS.							
CORRECTIVE ACTION-DISPLACEMENT GYROS WERE REDESIGNED INCORPORATING Baffles TO REDUCE FLEX LEAD DAMAGE.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	N2-99-04-4266-F RATE GYRO	FAR 27-04237-3	830423	FACTORY	YES	HONEYWELL NO	892912
FAILURE MODE-OUT OF TOLERANCE. THE TORQUER COULD NOT BE CALIBRATED IN THE FACTORY. APPARENTLY, THE GYRO WAS REJECTED FROM A REMOTE RATE GROUP BECAUSE THE TORQUER AMPLIFIER COULD NOT BE CALIBRATED. NO DISCREPANCY WAS FOUND IN THE 67 NO.							
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-99-04-C58F TORQUER AMPLIFIER CIRCUIT BOARD	FAR 27-41568-807	1260 830423	FACTORY	NO	GO/C NO	892809
FAILURE MODE-OUT OF TOLERANCE. THE CIRCUIT BOARD WAS DIRECTED TO FAILURE ANALYSIS BY NASA, USAF, AND GO/C INSPECTION FOR THREE SUSPECTED COLD SOLDER JOINTS. THE SUSPECTED DISCREPANCY WAS NOT CONFIRMED.							
CORRECTIVE ACTION-NONE. NO FAILURE FOUND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	MC-99-04-4327-F DISPLACEMENT GYRO	FAR 7-04230-3	830423	FACTORY	YES	KEARFOTT NO C702306000	891691
FAILURE MODE-OUT OF TOLERANCE. MASS UNBALANCE DRIPT OF 4.82 DEGREES PER HOUR OBSERVED DURING RECEIVING INSPECTION (3.0 DEGREES PER HOUR MAX ALLOWABLE). FAILURE MOST PROBABLY CAUSED BY TEST EQUIPMENT MALFUNCTION OR HUMAN ERROR.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. GO/C REPEATED A FULL RECEIVING INSPECTION USING FACTORY EQUIPMENT AND ALL PARAMETERS WERE WITHIN SPECIFICATIONS. INSTRUCTIONS WERE SENT TO RECEIVING INSPECTION RECOMMENDING RETEST OF OUT OF TOLERANCE GYRO REJECTIONS BEFORE REMOVAL FROM TEST FIXTURES WITH DOCUMENTATION OF ACTION IN THE INSPECTORS REPORT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4284F GYRO, DISPLACEMENT-8MMO	FAR 7-04230-3	830422	FACTORY	YES	NO	892914
FAILURE MODE-SHORT, ELECTRICAL. 8MMO OUTPUT DISAPPEARED WHEN THE GYRO WAS TORQUED TO ITS FULL CCW POSITION. THIS WAS CAUSED BY A BEND IN THE 8MMO FLEX LEAD POST ATTACHED TO THE FLOAT ALLOWING THE POST TO SHORT TO THE GYRO CASE WHEN THE FLOAT WAS IN THE FULL CCW POSITION. THE DAMAGE TO THE POST MAY HAVE BEEN CAUSED BY TORQUING THE GYRO WITH THE FLOTATION FLUID COLD. THE ACTUAL CAUSE OF THE DAMAGE WAS NOT LEARNED.							
CORRECTIVE ACTION-NONE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	N2-99-04-4261-F SHRD SUBASSEMBLY TWO	PAR 27-41186-3	930419	FACTORY	NO	50/C	896236
FAILURE MODE-OUT OF TOLERANCE. MODULE HAD IMPROPER OUTPUT WAVEFORM. FAILURE WAS CAUSED BY LOW VOLTAGE IN TEST SET. THERE WAS NO FAILURE OF THE SHRD MODULE.							
CORRECTIVE ACTION-NONE. FAILURE OF SHRD NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-99-04-4236-F	FAR 27-41002-897	1300 830419	ETR	YES	50/C NO	896209
FAILURE MODE-OUT OF TOLERANCE. GYRO CAN FAILED 2 VOLT CCW PITCH SLAVING PROGRAM. OUTPUT WAS 0.784 DEGREE PER SECOND. SHOULD BE NOT LESS THAN 0.787. CAN WAS ORIGINALLY CALIBRATED TO AN OBSOLETE PROCEDURE. CORRECT PROCEDURE PROVIDES MORE ACCURATE METHOD OF CALIBRATING GYRO CANS.							
CORRECTIVE ACTION-NONE. REVISED PROCEDURE BECAME EFFECTIVE APRIL 9, 1963 PROBABLY AFTER THE ORIGINAL CALIBRATION OF THIS CAN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4236 AMPLIFIER	FAR 27-72385	1900 830419	MTR	NO	NO	892913
FAILURE MODE-FAIL DURING OPERATION. MAIN GYRO CAN WAS REJECTED WHEN ROLL GYRO FINE HEATER FAILED. THE FAILURE WAS CAUSED BY ACCIDENTAL GROUNDING OF THE ROLL HEATER MONITOR LINE RESULTING IN OVERHEATING AND FAILURE OF THE MAGNETIC A AMPLIFIER TEMPERATURE CONTROLLER. DURING THE ANALYSIS THE PITCH DISPLACEMENT GYRO SPIN MOTOR FAILED DUE TO A BROKEN FL EX LEAD. THIS WAS NOT RELATED TO THE ORIGINAL FAILURE. THE PART NUMBER OF THE MAGNETIC AMPLIFIER IS 60-07900-02.							
CORRECTIVE ACTION-THE CAUSE OF THE SHORT ON THE MONITOR LINE WAS FOUND IN SITE GROUND EQUIPMENT AND CORRECTED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4230F AMPLIFIER TORQUE	FAR 27-41633-833	630417	FACTORY	YES	50/C NO	896236
FAILURE MODE-ELECTRICAL SHORT. THE AMPLIFIER WAS REJECTED BECAUSE THE GYRO PACKAGE HAD HALF NORMAL GUIDANCE SLAVING OUTPUT. CHOKE L1 HAD SHORTED WINDINGS DUE TO INSULATION BREAK DOWN.							
CORRECTIVE ACTION-NONE. VENDOR OF CHOKE IS OUT OF BUSINESS.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4290F SMD SUBASSEMBLY ONE	PAR 27-43189-3	930413	FACTORY	YES	60/C NO	893043
FAILURE MODE-OUT OF TOLERANCE. MODULE HAD NO OUTPUT AFTER BEING POTTED. FAILURE WAS CAUSED BY A DEFECTIVE WELD.							
CORRECTIVE ACTION-NONE. EXISTING PROCESS CONTROLS CONSIDERED ADEQUATE TO CORRECT DISCREPANT WELD PROCEDURES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4248F TRANSFORMER	PAR 27-41002-893	930413	FACTORY	NO	60/C NO	896236
FAILURE MODE-ELECTRICAL SHORT. MAIN GYRO CAN WAS REJECTED FOR SHORT ON THREE PHASE LINE. PHASE B OF SPIN MOTOR TRANSFORMER PRIMARY WAS SHORTED. THIS WAS CAUSED BY FAILURE OF TEST SET TESTORS S/N 9. TWO PHASES WERE 45 VOLTS INSTEAD OF 115 VOLTS.							
CORRECTIVE ACTION-NONE. TEST SET WAS REPAIRED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	W-99-04-4223F DISPLACEMENT GYRO WARNERS	PAR 27-41002-897	1300 930412	ETR	YES	REARPORT NO	894395
FAILURE MODE-STRUCTURAL. CAN WAS REJECTED FOR HIGH PITCH DISPLACEMENT GYRO DRIFT. ROLL DISPLACEMENT NO WAS ALSO HIGH BUT WITHIN TOLERANCE. DRIFT RATES WERE DUE TO DISTORTED FLEX LEADS.							
CORRECTIVE ACTION-GYROS WERE REDESIGNED TO INCORPORATE Baffles TO REDUCE FLEX LEAD DAMAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	W-99-04-4227F SMD DIODE	PAR 27-44534	1930 930412	WTR	YES	NO	894397
FAILURE MODE-ELECTRICAL OPEN. CAN WAS REJECTED FOR NO SMD OUTPUT. THE FAILURE WAS ISOLATED TO AN OPEN DIODE IN THE OUTPUT OF THE SMD SUBASSEMBLY 2. THE DIODE WAS DESTROYED DURING DEPOTTING OF THE MODULE.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE OF THE DIODE WAS NOT LEARNED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AAG 1-0012/74-4CO-01-130 DISPLACEMENT GYRO	COMPOSITE-B FACT 27-41002-897	1300 930409	14 171	YES	60/C NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING LOOP TEST, PITCH DISPLACEMENT GYRO DELAYED 1.7 SECONDS IN RESPONDING TO GUIDANCE STEERING COMMAND. NORMAL DELAY IS 0.2 TO 0.4 SECONDS. POSSIBLY CAUSED BY STICKION SINCE GYRO WAS							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AS REJECTED FOR STUCTION BY MANUFACTURER WHEN RECYCLED TO FACTORY.							094030
SYSTEM EFFECT-OPERATION STARTS TOO LATE. EXECUTION OF PITCH STEERING COMMAND DELAYED APPROXIMATELY 1.4 SECONDS.							
VEHICLE EFFECT-NONE. PROBLEM NOT DISCOVERED UNTIL AFTER COMPLETION OF FACT.							
CORRECTIVE ACTION-REPLACE SYRO.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4263F SARD SUBASSEMBLY ONE	FAR 27-43165-3	830405	FACTORY	YES NO	60/C	093246
FAILURE MODE-ELECTRICAL OPEN. MODULE HAD NO OUTPUT DUE TO BAD WELD AT LEAD NUMBER ONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4263F SARD SUBASSEMBLY ONE	FAR 27-43165-3	830405	FACTORY	60/C		093253
FAILURE MODE-OUT OF TOLERANCE. MODULE HAD NO OUTPUT AFTER POTTING DUE TO A BAD WELD.							
CORRECTIVE ACTION-NONE. ROUTINE PROCESS CONTROL SHOULD CORRECT DEFECTIVE WELD PROCEDURES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4263F DISPLACEMENT GYRO WIRE	FAR 7-04250-3	830404	FACTORY	YES NO	REARFOIT	093496
FAILURE MODE-ELECTRICAL OPEN. SARD OUTPUT WAS INTERMITTENT. ANALYSIS SHOWED PHASE B FLEX LEAD WAS BROKEN CAUSING IN TERMITTENT JPIN MOTOR OPERATION.							
CORRECTIVE ACTION-DISPLACEMENT GYRO'S WERE REDESIGNED INCORPORATING Baffles TO REDUCE FLEX LEAD DAMAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4263F SARD SUBASSEMBLY ONE	FAR 27-43165-3	830404	FACTORY	YES NO	60/C	093516
FAILURE MODE-OUT OF TOLERANCE. MODULE HAD IMPROPER OUTPUT WAVEFORM AND COULD NOT BE CALIBRATED ON SARD CIRCUIT BOARD D. NO REASON FOR THE REPORTED DISCREPANCY WAS FOUND.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	3ITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4274F SHRD SUBASSEMBLY TWO	FAR 27-43186-3	630403	FACTORY	YES	NO	892893
FAILURE MODE-ERRATIC OPERATION. MODULE HAD ERRATIC OUTPUT AT UPPER TEMPERATURE LIMIT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4274F SHRD SUBASSEMBLY ONE	FAR 27-43186-3	630403	FACTORY	YES	NO	892800
FAILURE MODE-ERRATIC OUTPUT. TWO MODULES WERE REJECTED FOR ERRATIC OUTPUT AT UPPER TEMPERATURE LIMIT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT SQUARE-A/B GYRO PACKAGE	A-99-04-4274F DISPLACEMENT GYRO HEATER	FAR 7-04230-3	630401	FACTORY	YES	NO	892895
FAILURE MODE-ELECTRICAL OPEN. HEATER WAS INTERMITTENT DUE TO BROKEN SENSOR WIRE.							
CORRECTIVE ACTION-100 PERCENT INSPECTION OF HEATER SPLICES, TEMPERATURE CYCLING OF ALL SIGNAL ASSYS., AND CHECK OF HEATER CONTINUITY AT 20 DEGREES CENTIGRADE WILL BE PERFORMED AT REARPOFF.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4274F SHRD	FAR 27-43186-3	630328	FACTORY	YES	NO	892739
FAILURE MODE-OUT OF TOLERANCE. SHRD SUBASSEMBLY 2 HAD HIGH OUTPUT AFTER POTTING. A RIPPLE VOLTAGE OF 28 VOLTS P-P W AS FOUND AT THE BASE OF 93. RIPPLE WAS ATTRIBUTED TO INCORRECT TIME CONSTANT OF CALIBRATION RESISTOR AND FILTER CAPA CITOR.							
CORRECTIVE ACTION-YES. EQUIPMENT USED TO CHECK OUT SHRD SUBASSEMBLIES WAS REDESIGNED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4254F SHRD SUBASSEMBLY ONE	FAR 27-43186-3	630327	FACTORY	YES	NO	
FAILURE MODE-ELECTRICAL OPEN-MODULE HAD NO OUTPUT AFTER BEING POTTED. FAILURE WAS ATTRIBUTED TO A BAD WELD.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE.							895497
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4216F GYRO, DISPLACEMENT	FAR 7-04290-3	630327	FACTORY	YES NO	YES KEARFOTT NO C702506000	892747
FAILURE MODE-OUT OF TOLERANCE. GYRO OUTPUT WAS NON LINEAR. HIGH DRIFT RATE WAS SEEN DURING ANALYSIS. FLOATATION FLUID WAS FOUND INSIDE FLOAT HOUSING. FLEX LEADS WERE DISTORTED. DAMAGE WAS ATTRIBUTED TO MISHANDLING AND DISTORTED FLEX LEADS.							
CORRECTIVE ACTION-GYRO WAS REDESIGNED INCORPORATING BAFFLES TO REDUCE FLEX LEAD DAMAGE.							895662
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-4242F THERMOSTAT	FAR 27-45045-007	1900 630326	WTR	YES NO		
FAILURE MODE-ELECTRICAL SHORT. TWO RATE PACKAGES WERE REJECTED FOR NO TEMPERATURE SAFE INDICATION. FAILURE WAS DUE TO THERMOSTAT WHICH SHORTED TO GROUND BECAUSE OF POOR SOLDERING OF LEADS AT THE TIME GYRO PACKAGE WAS ASSEMBLED.							
CORRECTIVE ACTION-NONE. FACTORY PERSONNEL WERE INSTRUCTED TO USE GREATER CARE.							892744
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4213F SHRD/TRANSISTOR	FAR 27-43563-1	630326	FACTORY	YES NO	YES 60/C NO	
FAILURE MODE-OUT OF TOLERANCE. SHRD CIRCUIT ASSEMBLY HAD NO OUTPUT ON CHANNEL ONE. TRANSISTOR 91 OF SHRD SUBASSEMBLY ONE IN CHANNEL ONE WAS FOUND OPEN BASE TO COLLECTOR DUE TO EXCESSIVE CURRENT.							
CORRECTIVE ACTION-REASON FOR DAMAGE TO TRANSISTOR WAS NOT FOUND. NO CORRECTIVE ACTION TAKEN.							895246
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4263F SHRD SUBASSEMBLY TWO	FAR 27-43166-5	630321	FACTORY	YES NO	YES 60/C NO	
FAILURE MODE-ELECTRICAL OPEN. MODULE HAD NO OUTPUT. LEAD NUMBER ONE FELL OUT AS MODULE WAS BEING PREPARED FOR ANALYSIS. MODULE FUNCTIONED NORMALLY AFTER LEAD NUMBER ONE WAS REPLACED. FAILURE WAS ATTRIBUTED TO FAULTY WELD AT PIN ONE.							
CORRECTIVE ACTION-NONE.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER	DIP DATA SOURCE	VEHICLE	SITE	PRI	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE	TIME	OTH	VENDOR PART NO
AUTOPLOT-SQUARE-A/B	DISPLACEMENT GYRO	27-41002-897	1300	ETR	NO	NO
GYRO PACKAGE	27-41002-897	27-41002-897	630320			
FAILURE MODE-OUT OF TOLERANCE. THREE GYROSCOPE PACKAGES FAILED DURING THE 3-VOLT COUNTER-CLOCK-WISE ROLL PROGRAM SLAVING TEST. ANALYSIS CONFIRMED THE INDICATED FAILURES AND ATTRIBUTED THEM TO CALIBRATION OF THE PACKAGES WITH A TEST SET IN WHICH AN ERROR HAD BEEN MADE DUE TO LACK OF CLARITY IN THE VALIDATION PROCEDURE.						
CORRECTIVE ACTION-REVISED TEST SET VALIDATION PROCEDURE 27-28831-B4/M AND PROPOSED CHANGES TO THE TEST SET.						
AUTOPLOT-SQUARE-A/B	3P-99-04-4264F	27-43185-3	630318	FACTORY	YES	ED/C
GYRO PACKAGE	3MRD SUBASSEMBLY ONE	27-43185-3			NO	
FAILURE MODE-OUT OF TOLERANCE. MODULE HAD NO OUTPUT.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B	A-90-04-4231F	27-41002-833	24E	WTR	YES	
GYRO PACKAGE			630318		NO	
FAILURE MODE-FAILED DURING OPERATION. CAN WAS REJECTED FOR INOPERATIVE PITCH MULLING LOOP.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B	M2-99-04-4191-F	27-04374-1	183D	FACTORY	YES	MINN-MONEYWELL
GYRO PACKAGE	3MRD WIRING		630318		NO	
FAILURE MODE-SHORT, ELECT. THE PITCH-RATE GYROSCOPE REPORTEDLY FAILED BECAUSE OF NO 3MRD OUTPUT. ANALYSIS COULD NOT CONFIRM THE REPORTED FAILURE. LACK OF 3MRD VOLTAGE IS ATTRIBUTED TO THE GROUNDING OF PIN 91 ON TERMINAL BOARD 102. P/N 7-41786-803.						
CORRECTIVE ACTION-NONE. FAILURE OF PITCH RATE GYRO NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B	A-90-04-4177-F	27-41002-888	83F	WTR	YES	
GYRO PACKAGE	AMPLIFIER-RESISTOR		630317		NO	
FAILURE MODE-ELECTRICAL OPEN-THE GYROSCOPE PACKAGE INDICATED HIGH TORQUING GAINS IN THE ROLL CHANNEL. SIGNAL AMPLIFIER 27-41879-818 OUTPUT WOULD INTERMITTENTLY GO TO ZERO WHEN AN INPUT SIGNAL WAS APPLIED TO THE DISPLACEMENT INPUT.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRJ OTH	VENDOR NAME VENDOR PART NO
FAILURE WAS CAUSED BY RESISTOR R-30 WHICH WOULD OPEN WHEN SLIGHTLY HEATED.						
CORRECTIVE ACTION-NONE.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4241-F RATE GYRO	PAR 27-04574-3	830315	FACTORY	YES	MONEYMELL NO
FAILURE MODE-OUT OF TOLERANCE. COUNTERCLOCKWISE GIMBAL LIMIT WAS OUT OF TOLERANCE. FAILURE WAS CONFIRMED. GYRO WAS NOT OUT OF TOLERANCE WHEN IT WAS PURCHASED. THE REASON FOR GIMBAL LIMIT SHIFT WAS NOT LEARNED.						
CORRECTIVE ACTION-NONE. REASON FOR THE LIMIT SHIFT WAS NOT LEARNED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4229F RATE GYRO	PAR 27-04574-3	830315	FACTORY	YES	MONEYMELL NO JR3101A2
FAILURE MODE-CONTAMINATION. GYRO WAS REJECTED FOR SHORT BETWEEN PHASE C AND GROUND. SHORT CIRCUIT WAS CAUSED BY SOLID PARTICLES IN THE FLUTATION FLUID RESULTING FROM THE OUTER CASE SEALING OPERATION.						
CORRECTIVE ACTION-VENDOR INSTITUTED IMPROVED @ C PROCEDURES INCLUDING ONE HUNDRED PERCENT INSPECTION OF INTERNAL PARTS AND INCREASED FLUSHING.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4210F GYRO RATE/SHRD	PAR 27-04374-3	830315	FACTORY	YES	NO
FAILURE MODE-OUT OF TOLERANCE. SHRD OUTPUT WAS 0.38 VOLT. SHOULD BE NOT LESS THAN 0.5 VOLT. SHRD MAGNET HAD BEEN DEMAGNETIZED DUE TO INADVERTENT APPLICATION OF VOLTAGE TO SHRD OUTPUT PINS.						
CORRECTIVE ACTION-NONE CORRECTIVE ACTION TAKEN. REASON FOR APPLICATION OF VOLTAGE TO SHRD OUTPUT PINS WAS NOT LEARNED						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4228F TRANSFORMER	PAR 27-04179-3	830314	FACTORY	YES	OSBORNE NO 8971
FAILURE MODE-SHORT ELECTRICAL. TRANSFORMER WAS REJECTED FOR OVERHEATING DURING TEST. THIS WAS CAUSED BY SHORT CIRCUITS IN PRIMARY AND ONE SECONDARY WINDING.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE. CAUSE OF THE SHORT NOT FOUND.							991886
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4232F SHRD TRANSISTOR	FAR A-99-04-4232F	830314	FACTORY	YES NO		994402
FAILURE MODE-ELECTRICAL SHORT. THE SUBASSEMBLY HAD NO OUTPUT AFTER POTTING. COLLECTION OF TRANSISTOR Q2 WAS SHORTED TO NEGATIVE SIDE OF CAPACITOR C2 DUE TO CONTACT BETWEEN CASES OF THE COMPONENTS. FAILURE WAS ATTRIBUTED TO PRESSURE EXERTED BY THE POTTING MATERIAL. CAPACITOR SHOULD HAVE BEEN INSULATED PER B/P 27-43185.							
CORRECTIVE ACTION-VISUAL AIDS WERE REVISED TO SHOW CAPACITOR INSULATED PER BLUE PRINT.							991886
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	N2-99-04-4340-F CIRCUIT BOARD SHRD	FAR 27-43185-3	830314	FACTORY	YES NO	60/C	
FAILURE MODE-ELECTRICAL OPEN. SHRD SUBASSEMBLY 1 HAD NO OUTPUT. FAILURE CONFIRMED ON ONE UNIT DUE TO POOR WELD JOINT BETWEEN RESISTOR R14 AND WELD RIBBON. FOUR UNITS EXHIBITED NO FAILURE INDICATION THROUGHOUT EXTENSIVE FUNCTIONAL A NO TEMPERATURE TESTS.							
CORRECTIVE ACTION-60/C WELD PROCESS SCHEDULES AND QC TESTS WERE REVIEWED AND FOUND ADEQUATE. THE EIGHT-POUND MINIMUM BREAKAGE STRENGTH OF EACH WELD AS REQUIRED BY MANUFACTURING PROCESS SPECIFICATION WAS CONSIDERED ADEQUATE. 60/C IN VESTIGATION AND EFFORT TO IMPROVE THE RELIABILITY OF WELDS IS CONTINUING.							991886
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4341-F CIRCUIT BOARD SHRD	FAR 27-43185-3	830314	FACTORY	YES NO	60/C	
FAILURE MODE-OUT OF TOLERANCE. SHRD SUBASSEMBLY OUTPUTS WERE LOW. FAILURE CONFIRMED ON ONE UNIT DUE TO DEFECTIVE WELD JOINT BETWEEN THE COLLECTOR OF TRANSISTOR Q-4 AND WELD RIBBON. SIX UNITS EXHIBITED NO FAILURE INDICATION THROUGHOUT EXTENSIVE TESTS.							
CORRECTIVE ACTION-60/C WELD PROCESS SCHEDULES AND QC TESTS WERE REVIEWED AND FOUND ADEQUATE. 60/C INVESTIGATION AND EFFORT TO IMPROVE THE RELIABILITY OF WELDS IS CONTINUING. FACTORY EQUIPMENT OPERATING PROCEDURE WAS REVISED TO INCLUDE INPUT VOLTAGE CHECK AND FACTORY PERSONNEL WERE ALERTED TO THE ERRONEOUS REJECTIONS AND REVISED PROCEDURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4232-F SHRD	FAR 27-43185-3	830313	FACTORY	YES NO	60/C	
FAILURE MODE-OUT OF TOLERANCE. NO OUTPUT FROM SHRD SUBASSEMBLY NO. 1. FAILURE CONFIRMED DUE TO POOR WELD JOINT BETWEEN R-3 AND THE WELD RIBBON.							

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SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-GD/C NELD PROCESS SCHEDULES AND QC TESTS WERE REVIEWED AND FOUND ADEQUATE. THE EIGHT-POUND MINIMUM BREAKAGE STRENGTH OF EACH NELD AS REQUIRED BY MANUFACTURING PROCESS SPECIFICATION WAS CONSIDERED ADEQUATE. DESIGN CHANGED TO ALLOW BETTER NELD'S.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-4276F RATE GYRO	FAR 27-43043-807	190C 830311	WTR	YES NO	GD/C NO
FAILURE MODE-FAIL DURING OPERATION. REMOTE RATE GROUP WAS REJECTED WHEN IT WAS NOTICED THE PITCH RATE HEATER CIRCUIT WAS CONNECTED TO THE 28 VOLT BUS PERMITTING EXCESS CURRENT TO FLOW THROUGH THE THERMOSTAT. THE WIRING ERROR WAS CORRECTED AND NO DAMAGE TO THE GYRO WAS FOUND. THE WIRING ERROR WAS CAUSED BY AN ERROR IN THE WIRING LIST 27-48265.						
CORRECTIVE ACTION-WIRING LIST WAS CORRECTED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-90-04-4171-F AMPLIFIER	FAR 27-41002-855	83F 830311	WTR	YES NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE GYROSCOPE PACKAGE EXHIBITED LOW SIGNAL OUTPUT FROM THE YAW SIGNAL AMPLIFIER. THIS WAS CAUSED BY AN IMPROPERLY-WIRED, HIGH-RESISTANCE SOLDER JOINT IN THE FEEDBACK LOOP OF THE YAW GYRO SIGNAL AMPLIFIER.						
CORRECTIVE ACTION-INSPECTORS WERE INSTRUCTED TO MAKE SURE THAT WIRING AND SOLDERING OF TERMINALS CONFORM TO PROPER PROCEDURES AT ALL TIMES.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	MG-99-04-4166-F GYRO-DISPLACEMENT	FAR 27-41002-897	150D 830309	FACTORY	YES NO	
FAILURE MODE-DRIFT. THE GYROSCOPE PACKAGE HAD HIGH DRIFT IN THE PITCH CHANNEL DUE TO A DISTORTED PHASE-A FLEXLEAD.						
CORRECTIVE ACTION-NEW HANDLING PROCEDURES SPECIFYING WARMUP, COOLDOWN, AND HANDLING REQUIREMENTS. VENDOR INCORPORATING BAFFLES INTO THE GYRO NEAR THE FLEX LEADS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-JA-01-4239F CAPACITOR	FAR 91-34018-183	830309	FACTORY	YES NO	GUERMAN NO NP827F864-2
FAILURE MODE-OUT OF SPECIFICATION. 102 CAPACITORS WERE REJECTED FOR BEING OUT OF SPEC. ON THE LOW SIDE. PARTS WERE NOT REJECTED FROM VEHICLE HARDWARE. THIS TYPE CAPACITOR IS USED IN THE GYRO CAN.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CONNECTIVE ACTION-RECEIVING INSPECTION TEST METHODS WERE IMPROVED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-JA-04-4234-F CAPACITORS	FAR 81-34018-088	830308	FACTORY	YES NO	YES NO
FAILURE MODE-OUT OF SPECIFICATION. 42 CAPACITORS WERE REJECTED FOR BEING OUT OF TOLERANCE. PARTS WERE NOT REJECTED FROM VEHICLE HARDWARE. THIS TYPE CAPACITOR IS USED IN THE GYRO CAN.						
CORRECTIVE ACTION-RECEIVING INSPECTION PROCEDURES FOR MEASURING CAPACITANCE WERE IMPROVED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4231-F 3WRD SUBASSEMBLY TWO	FAR 27-43186-3	830307	FACTORY	YES NO	YES NO
FAILURE MODE-OUT OF TOLERANCE. OUTPUT WAS TOO HIGH. SEVERAL BAD WELDS WERE FOUND DURING ANALYSIS. THESE WERE REPAIRED AND MODULE PERFORMED NORMALLY.						
CORRECTIVE ACTION-NONE. PROCESS CONTROLS AND PERIODIC REVIEW OF PROCEDURES WAS CONSIDERED ADEQUATE.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-80-04-4233F ELAPSED TIME METER	FAR 27-41002-855	830307	WTR	YES NO	YES NO
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. ELAPSED TIME INDICATOR WAS INOPERATIVE.						
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	AM3-0003-153F/FC-CO-01-0011-031 RELAY	COMPOSITE-FACTORY	153F 830301	FACTORY	NO NO	NO NO
SYSTEM EFFECT-OPERATION TOO LOW.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE RETEST REQUIRED.						
CORRECTIVE ACTION-A FAULTY AGE RELAY, CAUSING ATTENUATION OF PITCH GYRO RESPONSE AND TORQUING SIGNALS, WAS REPLACED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4147-F GYRO-RATE/SHRD	FAR 7-41015-987	630301	FACTORY	YES	60/C NO	898403
FAILURE MODE-OUT OF SPECIFICATION. THE GYRO CANISTER YAW RATE GYRO SPIN-MOTOR ROTATION-DETECTOR OUTPUT WAS LOW. ANALYSIS ATTRIBUTED THE LOW OUTPUT TO A DEMAGNETIZED SHRD MAGNET.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	3P-9D-04-4247F CANISTER PRESSURIZATION BOSS	FAR 27-41703-809	630301	WTR	YES	60/C NO	898239
FAILURE MODE-LEAK-EXTERNAL. REMOTE RATE GROUP INTERNAL PRESSURE COULD NOT BE MAINTAINED AT 14 PSIG. LEAKAGE WAS THROUGH POROUS WELD METAL AT BOSS FOR INLET PRESSURIZATION VALVE. THE FAILURE WAS ATTRIBUTED TO A DEVIATION FROM THE APPLICABLE WELD PROCEDURE.							
CORRECTIVE ACTION-X-RAY INSPECTION OF ALL WELD JOINTS WAS INCORPORATED IN PLANNING FOR 60/C MADE PARTS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4182-F GYRO-DISPLACEMENT	FAR 7-41015-987	183D 630301	FACTORY	YES	NO	898549
FAILURE MODE-OUT OF TOLERANCE. THE GYROSCOPE PACKAGE WAS REJECTED WHEN THE 2-DEGREE PITCH-DISPLACEMENT GAINS WERE FOUND TO BE HIGH OUT OF TOLERANCE. ANALYSIS CONFIRMED THE REPORTED FAILURE AND ATTRIBUTED IT TO A MISCALIBRATED SIGNAL AMPLIFIER. ANALYSIS ALSO FOUND THE DISPLACEMENT GYROSCOPE FIXED RESTRAINT DRIFFT TO BE HIGH DUE TO A SEVERELY DISTORTED PHASE-B FLEWLEAD.							
CORRECTIVE ACTION-WARMUP, COOLDOWN, AND HANDLING REQUIREMENTS WERE INCORPORATED INTO APPLICABLE PROCEDURES. BAFFLES ARE BEING INCORPORATED INTO THE GYRO NEAR THE FLEXLEADS TO PRECLUDE FAILURE FROM FLOW OF FLOATATION MATERIAL.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4220F AMPLIFIER/TRANSISTOR	FAR 27-41358-903	630227	FACTORY	YES	NO	898173
FAILURE MODE-OUT OF TOLERANCE. FAILED VIBRATION TEST. TRANSISTOR 82: A2N258A WAS FOUND VIBRATION SENSITIVE.							
CORRECTIVE ACTION-MIL-SPEC. 2N5258A REPLACED COMMERCIAL VERSION FOR ALL APPLICATIONS.							

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-4200-F RATE GYRO	FAR 27-04949-3	1300 930225	FACTORY	YES	MONEYWELL	997703
FAILURE MODE-OUT OF TOLERANCE. DURING RECEIVING INSPECTION TEST THE RATE GYRO FAILED THE DAMPENING RATIO TEST. FAIL URE UNCONFIRMED.							
CORRECTIVE ACTION-NONE. CAUSE COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4148-F SMD/MIRING	FAR 7-41015-987	1770 930225	FACTORY	YES	60/C NO	996401
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE GYRO CANISTER FAILED WITH NO OUTPUT FROM THE SPIN-MOTOR ROTATI ON-DETECTOR CIRCUITRY. ANALYSIS FOUND THAT THE SMD MODULE WOULD FAIL WHEN SUBJECTED TO HEATING AND COOLING CYCLES D UE TO THREE FAULTY WELD JOINTS.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4279F HEATER RING	FAR 7-41917-3	930225	FACTORY	YES	60/C NO	993296
FAILURE MODE-FAIL DURING OPERATION. HEATER RING FAILED AFTER INSTALLATION AND WARMUP IN A GYRO CAN.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4178-F GYRO-DISPLACEMENT-HEATER	FAR 27-41002-835	93F 930225	WTR	YES NO		994533
FAILURE MODE-ELECTRICAL OPEN. THE PITCH DISPLACEMENT GYROSCOPE FINE HEATER WAS NOT OPERATING. FAILURE WAS CAUSED BY HEATER WINDING BROKEN AT A SPLICE POINT DUE TO WIRE FLEXING.							
CORRECTIVE ACTION-NEARPOFF CHANGED THE GLUE WHICH HOLDS THE WIRES IN PLACE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-4181-F SMD-FILTER-ELECTRICAL	FAR 27-04949-3	2240 930225	FACTORY	YES	ACI NO	
FAILURE MODE-OUT OF TOLERANCE. THE SPIN-MOTOR ROTATION DETECTOR NETWORK FILTER REPORTEDLY FAILED ON CHANNEL 2. ANAL YSIS CONCLUDED THE FILTER DID NOT ACTUALLY FAIL BECAUSE IT MET THE SPECS APPLICABLE AT THE TIME OF PURCHASE. THE NAT							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
URE OF THE REPORTED FAILURE INDICATED THE FILTER WAS INCOMPATIBLE WITH THE SMD CHANNEL WHERE IT WAS USED.							894550
CORRECTIVE ACTION-NONE.							894823
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4188-F RATE GYRO-WIRING	FAR 27-04574-3	135F 630221	FACTORY	YES NO	HINNEAPOLIS-MO KEYWELL JR8101A2	
FAILURE MODE-SHORT. A RESISTANCE CHECK OF A RATE GYROSCOPE SHOWED THE TORQUER WINDING TO HAVE 27.8 OHMS INSTEAD OF THE NORMAL 340 TO 380 OHMS. THE SHORT WAS CAUSED BY A SPLASH OF SOLDER FLOWING OVER THE END OF THE TORQUER WINDING L EAD FERRULE TO GROUND.							
CORRECTIVE ACTION-VENDOR INCREASED FERRULE SIZE TO PREVENT SOLDER FROM SPILLING OVER THE END.							897482
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4509-F SMD	FAR 27-43188-3	135F 630220	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE. THE GYRO SELF-CHECK UNIT WOULD NOT CALIBRATE WHEN HEATED. TROUBLE WAS TRACED TO THE SCHMIDT TRIGGER MODULE WHICH WAS HEAT SENSITIVE. AFTER DEPOTTING TROUBLE DISAPPEARED.							
CORRECTIVE ACTION-REPORTED FAILURE WAS CONFIRMED, BUT WAS LOST AFTER DEPOTTING THE MODULE. THE CAUSE OF THE FAILURE WAS UNRESOLVED. NO CORRECTIVE ACTION TAKEN.							892083
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-9D-04-4313-F RATE GYRO GENERATOR	FAR 27-44234-3	188D 630219	WTR	YES NO	MURKINELL	
FAILURE MODE-ELECTRICAL OPEN. ROLL RATE GYRO SHOWED NO OUTPUT. FAILURE CONFIRMED DUE TO OPEN (ELECT) IN SIGNAL GENERATOR WINDING. CAUSE OF FAILURE WAS IMPROPER ASSEMBLY WHICH ENCAPSULATED PART OF THE SIGNAL GENERATOR WINDING IN THE EPOXY BOND.							
CORRECTIVE ACTION-VENDOR QC METHODS REVIEWED. VENDOR INITIATED PULL TEST ON EPOXY BOND AND IMPROVED INSPECTION TECHNIQUES BY 100-PERCENT INSPECTION OF SPIN MOTORS FOR SOUNDNESS OF THE EPOXY BOND AND CONTAMINATION OF THE ENDS OF THE GIMBAL. HY-POT INSULATION AND WINDING RESISTANCE TESTS WERE ALSO INCORPORATED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-4238F SPIN MOTOR TRANSFORMER	FAR 27-41002-833	630218	SAPD	YES NO	60/C	
FAILURE MODE-OPEN ELECTRICAL. MAIN GYRO CAN WAS REJECTED FOR AN OPEN SPIN MOTOR TRANSFORMER. TRANSFORMER HAD BURNED WINDINGS AND CRACKED CASE. FAILURE WAS ATTRIBUTED TO SHORT ON OPEN ON THREE PHASE LINE EXTERNAL TO THE GYRO CAN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							083860
	CORRECTIVE ACTION-NONE. CAUSE OF DAMAGE WAS NOT LEARNED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	3P-99-04-4194-F RATE GYRO BOARD	FAR 27-41703-809	1970 830215	FACTORY	YES NO		094426
	FAILURE MODE-FAIL DURING OPERATION. THE REMOTE THREE-RATE GYROSCOPE GROUP REPORTEDLY HAD NO OUTPUT FROM THE PITCH-RATE GYRO BOARD CIRCUIT WHEN MONITORED AT J8 PIN-U OF THE DISPLACEMENT GYRO PACKAGE. THE REPORTED FAILURE WAS CONFIRMED BUT THE CAUSE COULD NOT BE FOUND.						
	CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4193-F GYRO-RATE	FAR 7-41015-967	1770 830214	FACTORY	NO NO		096406
	FAILURE MODE-OUT OF SPECIFICATION. THE GYRO CARTRIDGE EXHIBITED LOW YAW RATE GYRO OUTPUT IN THE MISSILE FINAL CHECKOUT AREA. ANALYSIS INDICATED THAT ALL READINGS WERE ON THE LOW SIDE BUT WITHIN 2 PERCENT OF NOMINAL WHICH IS WITHIN SPECIFICATION. FAILURE INDICATIONS WERE CAUSED BY A BUILDUP OF PACKAGE AND TEST SET TOLERANCES.						
	CORRECTIVE ACTION-A LETTER WAS SENT TO THE AIR FORCE OFFICE AT GO/C REQUESTING PERMISSION TO EXPAND THE SYSTEM TEST PARAMETERS TO A POINT COMPARABLE WITH THE FIELD PARAMETERS. THIS WOULD TAKE INTO ACCOUNT THE BUILDUP OF TOLERANCES.						
	CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4193-F GYRO CIRCUIT BOARD	FAR 27-43229-3	87F 830214	FACTORY	NO NO		091286
	FAILURE MODE-OUT OF TOLERANCE. THE BOARD CIRCUIT BOARD CHANNELS 3 AND 5 WERE REPORTEDLY HEAT SENSITIVE. ANALYSIS COULD NOT CONFIRM A FAILURE OF THIS CIRCUIT BOARD. HOWEVER, THE MATING CIRCUIT BOARD 27-43230-801 WAS FOUND TO BE HEAT SENSITIVE. SEE FAR A-99-04-4194F.						
	CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4194-F GYRO CIRCUIT BOARD	FAR 27-43230-801	87F 830214	FACTORY	YES NO		
	FAILURE MODE-OUT OF TOLERANCE. THE BOARD CIRCUIT BOARD CHANNELS 7, 8 AND 9 WERE REPORTEDLY HEAT SENSITIVE. ANALYSIS COULD NOT CONFIRM FAILURES OF CHANNELS 7, 8 AND 9. HOWEVER, CHANNEL 6 WAS FOUND TO BE HEAT SENSITIVE BECAUSE OF A DEFECTIVE WELD JOINT IN SUBASSEMBLY 1, 27-43189-8.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE.							091285
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-4144-F GYRO-RATE/MOTOR	FAR 27-04374-3	630212	FACTORY	YES NO	YLS HONEYWELL NO VRS101A2	096404
FAILURE MODE-ERRATIC OPERATION. THE RATE GYRO WAS REJECTED DURING MANUFACTURING TESTS ON THE NEXT ASSEMBLY WHEN THE HULL OUTPUT VOLTAGE WAS OBSERVED TO CONTAIN A 2 CPS VARIATION. THIS OCCASIONALLY DROVE THE HULL VOLTAGE ABOVE THE SPECIFICATION LIMIT OF 25MV. ANALYSIS ATTRIBUTED FAILURE TO LATERAL SIGNAL MOVEMENT CAUSED BY MOTOR VIBRATION.							
CORRECTIVE ACTION-THE GYRO WAS RETRIMMED ON FEBRUARY 28, 1965, TO BRING THE HULL WITHIN SPECIFICATIONS. SINCE HULL OUTPUT VARIATION CANNOT, IN ITSELF, BE REGARDED AS A FAILURE, NO FURTHER ACTION IS CONSIDERED NECESSARY.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4330-F SHRD TRANSISTOR	FAR 27-43186-3	630212	FACTORY	YES NO		091678
FAILURE MODE-DRIFT. SHRD SUBASSEMBLY FAILED TO MAINTAIN ITS CALIBRATION. FAILURE CONFIRMED DUE TO CHANGING AC GAIN, AT LOW COLLECTOR CURRENTS. OF THE FIRST STAGE (EN736) OF THE SCHMITT TRIGGER. CAUSE OF FAULTY TRANSISTOR NOT DETERMINED.							
CORRECTIVE ACTION-NONE, BECAUSE IT WAS NOT KNOWN WHETHER THE TRANSISTOR WAS DEFECTIVE WHEN RECEIVED, AT LOW COLLECTOR CURRENTS. SINCE GAIN AT A COLLECTOR CURRENT OF 0.45 MA WAS NOT SPECIFIED OR THAT DAMAGE OCCURRED TO THE TRANSISTOR DURING SUBASSEMBLY CONSTRUCTION, RESULTING IN AN UNSTABLE AC GAIN AT LOW COLLECTOR CURRENTS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4318-F SHRD AMPLIFIER	FAR 27-43186-3	630212	FACTORY	YES NO		091344
FAILURE MODE-OUT OF TOLERANCE. THREE SHRD SUBASSEMBLIES FAILED TO MEET REQUIREMENTS OF STANDARD FACTORY ACCEPTANCE PROCEDURE. FAILURE CONFIRMED DUE TO AMBIGUOUS CALIBRATION PROCEDURE.							
CORRECTIVE ACTION-60/C CHANGED FACTORY ACCEPTANCE PROCEDURE TO PROVIDE FOR CALIBRATION OF SHRD SUBASSEMBLIES AT 30 PLUS OR MINUS 0.5 WVC, INSTEAD OF 25 WVC FACTORY TEST EQUIPMENT USED TO CHECK SHRD COMPONENTS WAS REPLACED BY AN IMPROVED DESIGN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4179-F GYRO-DISPLACEMENT	FAR 27-41002-893	134F 830206	ETR	YES NO		084532
FAILURE MODE-OUT OF SPECIFICATION, TOLERANCE OR EXPECTED TEST VALUE. THE GYROSCOPE PACKAGE REPORTEDLY EXHIBITED NON -LINEAR TORQUING. ANALYSIS COULD FIND NO FAILURE AND THE ONLY DISCREPANCY WAS THAT THE SIGNAL GENERATOR END OF THE V LOAD CAN SHOWED SIGNS OF DIMPLING. THIS COULD HAVE CAUSED THE GYRO TO EXHIBIT STICKION ONCE WITHOUT REPEATING.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4133-F CIRCUIT BOARD/RESISTOR	FAR 7-41013-987	177D 830207	FACTORY	YES NO		086405
FAILURE MODE-OUT OF SPECIFICATION. GYRO CANISTER EXHIBITED A LOW VOLTAGE OUTPUT INTO THE APCHE TEST EQUIPMENT IN THE E MISSILE FINAL CHECKOUT AREA. TERMINAL BOARD TB-104 RESISTORS R-107 AND R-113 WERE INTERCHANGED IN THEIR INSTALLATI ON. THESE RESISTORS ARE IN THE OUTPUT CIRCUIT OF THE TELEMETRY EMITTER FOLLOWER.							
CORRECTIVE ACTION-INSPECTORS WERE REMINDED OF THE DIRE CONSEQUENCES OF ALLOWING ITEMS SUCH AS THIS TO GET PAST THE R STATION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4188-F SMD/CIRCUIT BOARD	FAR 27-43186-3	45F 830207	FACTORY	YES NO		084148
FAILURE MODE-OUT OF TOLERANCE. THE MODULE FAILED WITH CHANNEL 1 OUTPUT TOO HIGH. ANALYSIS ATTRIBUTED FAILURE TO A B AD WELD JOINT ON PIN 4.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4143-F SMD/MIRING	FAR 27-43183-3	830206	FACTORY	YES NO		086323
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SMD MODULE HAD NO OUTPUT. A BROKEN WELD WAS FOUND BETWEEN THE JUNCTION OF DIODE CA-3 AND THE BUS BAR.							
CORRECTIVE ACTION-A REVIEW OF WELD OPERATORS TRAINING AND MANUFACTURING OPERATIONS WAS MADE. A CONFIDENCE LEVEL OF 99.97 PERCENT HAS BEEN ESTABLISHED ON THE IN-PROCESS MANUFACTURING OPERATIONS OF THESE MODULES.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4088-F GYRO-RATE	FAR 27-43045-909	630206	ALTUS	NO NO		994877
FAILURE MODE-STRUCTURAL FAILURE. GYRO PACKAGE EXHIBITED OUT OF TOLERANCE TORQUING GAIN IN YAW CHANNEL. FAILURE CORRECTED DUE TO BENT TORSION BARS IN GYRO CAUSED BY DROPPING THE GYRO PACKAGE ON ONE CORNER FROM A HEIGHT ABOVE TESTED LIMITS. (HUMAN INITIATED FAILURE).							
CORRECTIVE ACTION-TECH ORDERS APPLICABLE TO THE PACKAGE WERE REVIEWED AND FOUND ADEQUATE. SUFFICIENT CAUTION NOTES ON DROPPING AND INSTRUCTIONS COVERING THE EVENTUALITY OF DAMAGED PACKAGES WERE INCLUDED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4163-F SHRD CAPACITOR	FAR 27-43188-3	630206	FACTORY	YES NO	60/C	994822
FAILURE MODE-ELECTRICAL SHORT. A MODULE WHICH IS PART OF THE GYROSCOPE SELF CHECK UNIT HAD A PARTIAL HALF-WAVE RECTIFIED OUTPUT INSTEAD OF FULL-WAVE RECTIFIED. ANALYSIS DETERMINED THAT CAPACITOR C-1 HAD A VERY HIGH LEAKAGE RATE WHICH UPSET THE BIAS OF TRANSISTOR Q-1. MODULE FAILURE IS ATTRIBUTED TO CAPACITOR C-1 SHORT CIRCUITING AROUND RESISTOR R-1.							
CORRECTIVE ACTION-INSPECTION AND PRODUCTION PERSONNEL ARE USING A GAGE TO MEASURE THE SEPARATION BETWEEN THE CAPACITOR AND RESISTOR LEADS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4136-F AMPLIFIER/TRANSISTOR	FAR 7-41014-987	630203	FACTORY	YES NO	60/C	994807
FAILURE MODE-FAIL DURING OPERATION. THE GYRO CANISTER EXHIBITED A LOW SIGNAL AMPLIFIER VOLTAGE OUTPUT AFTER 25 MINUTES OF OPERATION. THE YAW GYRO SIGNAL AMPLIFIER TRANSISTOR Q8 WAS IMPROPERLY HEAT SINKED. A THERMAL RUN-AWAY OF TRANSISTOR CAUSED THE AMPLIFIER TO OSCILLATE AND EXHIBIT A LOW OUTPUT.							
CORRECTIVE ACTION-INSPECTORS WERE INFORMED OF THIS FAILURE AND THE CONSEQUENCES OF IMPROPER HEAT SINKS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4244F SHRD	FAR 27-43233-3	630203	FACTORY	YES NO	60/C	994822
FAILURE MODE-ERRATIC OPERATION. SHRD OUTPUT WAS INTERMITTENT. FAILURE WAS CAUSED BY IMPROPERLY WELDED JOINT IN THE SHRD SUBASSEMBLY TWO.							
CORRECTIVE ACTION-MONT. WELDERS CERTIFICATION PROGRAM WAS NOT COMPLETE WHEN THIS UNIT WAS ASSEMBLED.							

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4303-P SHRD	FAR 27-43223-3	1770 630803	FACTORY	YES	60/C NO
FAILURE MODE-OUT OF TOLERANCE. SPIN MOTOR ROTATION DETECTOR (SHRD) SHOWED NO OUTPUT FROM CHANNELS 1 AND 2. FAILURE CONFIRMED DUE TO TEMPERATURE SENSITIVE SUBASSEMBLIES NO. 2. CAUSE OF FAILURE NOT DETERMINED BECAUSE FAILURE INDICATION WAS LOST WHEN SUBASSEMBLIES WERE DEPOTTED.						
CORRECTIVE ACTION-NO POSITIVE CORRECTIVE ACTION TAKEN SINCE FAILURE WAS UNRESOLVED. ALTHOUGH FAILURE MODE EXISTED PRIOR TO DEPOTTING, EXTENSIVE TEMPERATURE TESTS AFTER DEPOTTING FAILED TO RE-ESTABLISH THE FAILURE MODE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4139-P GYRO-RATE SHRD	FAR 27-45043-903	630801	SCHILLIN	YES	60/C NO
FAILURE MODE-OUT OF SPECIFICATION. THE TWO-RATE GYRO PACKAGE HAD A LOW SPIN-MOTOR ROTATION-DETECTOR OUTPUT.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	FAR HG-99-04-4112-P HARNES	FAR 27-41336-019	630800	FACTORY	NO	60/E NO 27-41333-13
FAILURE MODE-STRUCTURAL. NO FAILURE REPORTED. HARNES TRAY WAS REMOVED TO BE REPLACED WITH A NEW DESIGN TRAY. SUBSEQUENT TEARDOWN INSPECTION REVEALED A PIECE OF METAL IN PART OF THE POTTING MOLD) 1 5/8 X 3/8 UNDER A WIRE BUNDLE.						
CORRECTIVE ACTION-PLASTIC POTTING MOLDS WILL BE USED INSTEAD OF METAL MOLDS. THIS IS INTERIM CORRECTIVE ACTION UNTIL MOLDS CAN BE ELIMINATED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4080-P CIRCUIT BOARD-DIODE	FAR 27-41013-967	1770 630130	FACTORY	YES	CLEVELITE NO
FAILURE MODE-FAIL TO OPERATE. NO OUTPUT FROM THE REPLACEMENT GYRO SHRD. FAILURE CONFIRMED DUE TO INTERNALLY SHORTED DIODE.						
CORRECTIVE ACTION-VENDOR CONTACTED-BAND CIRCUIT REDESIGNED TO IMPROVE OPERATION.						

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4108-F SMRD	FAR 27-43100-3	74E 030130	FACTORY	YES	50/C NO	894430
FAILURE MODE-FAIL DURING OPERATION. THE SMRD MODULE REPORTEDLY WOULD NOT CALIBRATE. THIS REPORTED FAILURE WAS NOT CONFIRMED BY ANALYSIS. A COMPLETE FAILURE ANALYSIS COULD NOT BE PERFORMED BECAUSE THE COMPLETE CIRCUIT WAS NOT RECEIVED FOR ANALYSIS. ONLY THE MODULE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-88-04-4314-F DISPLACEMENT GYRO SMRD	FAR 27-41002-833	75F 030130	BYCAMORE	YES	NEARFOIT NO	892098
FAILURE MODE-ELECTRICAL OPEN. DURING PRECOUNTDOWN CHECKOUT GYRO SMRD NO-60 WAS RECEIVED. FAILURE CONFIRMED DUE TO SMRD FLEXLEAD SLIPPING OFF THE BINDING POST. LEAD MOST PROBABLY SLIPPED OFF POST BECAUSE OF ENLARGEMENT OF SPRING CLIP.							
CORRECTIVE ACTION-VENDOR QC MEASURES REVIEWED. VENDOR IMPLEMENTED 100-PERCENT INSPECTION UNDER 20-POWER MAGNIFICATION TO INSURE CORRECT SEATING OF SMRD FLEXLEADS. VENDOR PERFORMANCE RECORDS ON 1500 GYRO8 WITH SMRD FLEXLEADS INDICATE THE REPORTED DISCREPANCY IS AN ISOLATED CASE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4107-F SMRD	FAR 27-43100-3	135F 030129		YES	50/C NO	894429
FAILURE MODE-FAIL DURING OPERATION. THE SMRD MODULE REPORTEDLY WOULD NOT CALIBRATE. THE REPORTED FAILURE WAS NOT CONFIRMED BY ANALYSIS. A COMPLETE FAILURE ANALYSIS COULD NOT BE PERFORMED BECAUSE THE COMPLETE CIRCUIT WAS NOT RECEIVED FOR ANALYSIS. ONLY THE MODULE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4128-F FILTER-ELECTRICAL	FAR 27-04948-3	030128	FACTORY	YES	ACT NO ACT1024	891307
FAILURE MODE-OUT OF TOLERANCE. ATTENUATION TOO GREAT AT PEAK FREQUENCY.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE COULD NOT BE DETERMINED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HC-99-04-4397-F GYRO-DISPLACEMENT BMRD	FAR 27-41002-897	830125	FACTORY	NO	GO/C	893873
FAILURE MODE-FAILED DURING OPERATION. DURING TEST OF AUTOPILOT GYRO PACKAGE THE SPIN MOTOR ROTATION DETECTOR (SMRD) LIGHT FAILED TO GIVE A GO-INDICATION. FAILURE NOT CONFIRMED IN SMRD. DIRTY SLIP RING IN TEST EQUIPMENT TOOLING CAUSED FAILURE. ROLL GYRO BMRD OUTPUT ALSO LOW DUE TO PARTIALLY DEMAGNETIZED MAGNET BUT NOT LOW ENOUGH TO GIVE A NO-GO.							
CORRECTIVE ACTION-TEST EQUIPMENT TOOLING SLIP RING WAS REPAIRED AND VALIDATED. GO/C NOTIFIED ALL FACTORY AND SITE PERSONNEL OF DAMAGE THAT CAN BE INTRODUCED IN THE SMRD CIRCUIT BY INADVERTENT VOLTAGE APPLICATION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4080F HEATER/RESISTOR	FAR 7-410515-967	830124	FACTORY	YES NO		893886
FAILURE MODE-OUT OF TOLERANCE. GYRO FINE HEATER VOLTAGE WAS TOO HIGH. RESISTOR INSTALLED INCORRECTLY.							
CORRECTIVE ACTION-RAR A-99-04-3656 WAS WRITTEN TO CLARIFY AMBIGUOUS INSTRUCTIONS. ECN177942 WAS ISSUED TO REDUCE THE AMBIGUITY OF NOTE 1 ON BLUEPRINT 7-41756-905. THE VISUAL AID USED IN CONSTRUCTION OF THE CANISTER WAS ALSO MODIFIED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4304-F DISPLACEMENT GYRO	FAR 27-41002-895	134F 830124	ETR	NO NO		893874
FAILURE MODE-OUT OF TOLERANCE. 2-VOLT PITCH PROGRAM SLAVING VALUE WAS OUT OF TOLERANCE. FAILURE NOT CONFIRMED IN EXTENSIVE TESTING. DISCREPANCY FOUND DUE TO LACK OF EXACT COMPATIBILITY BETWEEN TEST SETS AT FACTORY AND ETR.							
CORRECTIVE ACTION-INVESTIGATION INITIATED BY GO/C TO DETERMINE CRITICAL SLAVING TOLERANCES. ECP 7384 SUBMITTED TO A COMMITTEE TO REVISE VALIDATION AND CALIBRATION PROCEDURES NEEDED TO STANDARDIZE TORQUING REFERENCE VOLTAGES, STABILIZE SLAVING TABLE INDEPENDENTLY OF THE GAIN OF EACH GYRO PACKAGE AND MODIFY THE 115 VAC, 400 CPS POWER SUPPLY TO PROVIDE MORE STABILITY.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	BP-JA-04-4222F TRANSDUCER	FAR 55-04007-1	830124	FACTORY	YES NO	CRESCENT	
FAILURE MODE-OPEN ELECTRICAL. TRANSDUCER WAS OPEN AT ALL PINS. BROKEN WIRES WERE FOUND IN CONNECTOR. DAMAGE WAS CAUSED BY TWISTING OF CONNECTOR DURING ASSEMBLY OF TRANSDUCER THIS COMPONENT HAD BEEN USED FOR VIBRATION TESTS AND HAD BEEN REPAIRED SEVERAL TIMES.							

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CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN.							893172
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4121-P SHRD	FAR 27-43188-3	630122	FACTORY	NO YES		896328
FAILURE MODE-OUT OF SPECIFICATION. THE SPIN-MOTOR ROTATION-DETECTOR SUBASSEMBLY 2 REPORTEDLY FAILED BECAUSE OF HIGH OUTPUT. ANALYSIS COULD FIND NO CAUSE FOR THE FAILURE INDICATION AND THE SUBASSEMBLY REMAINED WITHIN SPECIFICATIONS.							
CORRECTIVE ACTION-NONE. THE CAUSE OF FAILURE COULD NOT BE FOUND.							894661
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-01-4152-P GYRO-RATE	FAR 55-04120-1	630122	FACTORY	YES NO	YES MONEYWELL NO JRS125A1	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE RATE GYROSCOPE WAS REJECTED WHEN THE TORQUE MOTOR COULD NOT BE CALIBRATED. ANALYSIS FOUND ALL PARAMETER VALUES WELL WITHIN SPECIFICATIONS. NO INTERMITTENCY WAS OBSERVED WHEN THE GYROSCOPE WAS REJECTED NOR DURING ANALYSIS TESTS. FAILURE MAY HAVE BEEN A 'FAULT IN TEST PROCEDURE'. RPM CORRECTIVE ACTION-NONE. NO FAILURE COULD BE FOUND.							
CORRECTIVE ACTION-NONE. NO FAILURE COULD BE FOUND.							899205
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AX63-003-193D/FC-CO-01-0013-007	COMPOSITE-FACTORY	1930 630120		NO NO		
FAILURE MODE-FAIL DURING OPERATION-DUE TO DEFECTIVE AUTOPILOT TEST PROGRAMMER TAPES, THE EXPECTED YAW STEERING COMMAND AT 15.6 SECONDS WAS BYPASSED.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. COMPOSITE RETEST WAS REQUIRED.							
CORRECTIVE ACTION-THE AUTOPILOT TEST PROGRAMMER TAPES WERE REPLACED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HC-99-04-4121-P GYRO-RATE	FAR 27-41703-808	630120	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE. LOW OUTPUT FROM THE YAW-RATE GYRO SHRD CIRCUIT IN THE REMOTE THREE-RATE GYRO GROUP. FAILURE WAS CAUSED BY A PARTIALLY DEMAGNETIZED SHRD MAGNET.							
CORRECTIVE ACTION-UNKNOWN. INVESTIGATION INITIATED TO DETERMINE THE SOURCE OF VOLTAGE WHICH MAY DEMAGNETIZE THE SHRD							

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D MAGNET.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-4048F CONNECTOR ELECT	FAR	130D 830118	FACTORY	YES NO	
FAILURE MODE-SHORT (ELECTRICAL). GYRO CAN WAS REJECTED BECAUSE YAW DISPLACEMENT GYRO DID NOT RESPOND TO TORQUING SIGNALS. AN INTERMITTENT SHORT WAS FOUND BETWEEN CONNECTOR PINS J1-K AND J1P.						
CORRECTIVE ACTION-ALL PERSONNEL CONCERNED RECEIVED SPECIAL TRAINING. ALL HARNESS TRAYS NOT YET FORWARDED WERE REINSPECTED. ALL NEW TRAYS WILL BE 100 PERCENT INSPECTED EFFECTIVE 1 JAN 1965.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4053F HEATER RESISTOR	FAR 7-41013-987	177D 830118	FACTORY	YES NO	
FAILURE MODE-FAIL DURING OPERATION. GYRO FINE HEATER WOULD NOT TURN OFF. RESISTOR IN THE TEMPERATURE SENSE CIRCUIT WAS FOUND DAMAGED.						
CORRECTIVE ACTION-NONE-RESISTOR NO LONGER PROCURED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4161-F GYRO-DISPLACEMENT-AMPLIFIER	FAR 7-41907-805	133F 830117	FACTORY	YES NO	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE ROLL GYROSCOPE SIGNAL AMPLIFIER HAD NO OUTPUT.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4249P DISPLACEMENT GYRO GENERATOR	FAR 27-41062-855	830118	SAFD	YES NO	
FAILURE MODE-ELECTRICAL SHORT. MAIN GYRO CAN WAS REJECTED FOR HIGH PITCH TORQUING GAIN. FAILURE WAS DUE TO PARTIAL Y SHORTED REFERENCE WINDING IN TORQUE GENERATOR-DURING ANALYSIS, ROLL DISPLACEMENT GYRO WAS FOUND TO BE RUNNING AT ONE THIRD SYNC SPEED. THIS WAS ATTRIBUTED TO A DRY SPIN MOTOR BEARING.						
CORRECTIVE ACTION-SPIN MOTOR BEARING FAILURES WERE STUDIED IN THE SPIN-MOTOR RELIABILITY PROGRAM. NO ACTION WAS TAKEN ON THE TORQUE GENERATOR FAILURE.						

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HC-A9-04-4079-F AMPLIFIER-WIRING	FAR 27-41002-897	193D 830116	FACTORY	YES	60/C NO
FAILURE MODE-ELECTRICAL OPEN.-DURING FINAL CHECKOUT VERNIER ROLL TORQUING VALVES WERE 28 PERCENT ABOVE NORMAL WHERE 25 PERCENT IS ALLOWABLE. FAILURE NOT CONFIRMED BUT IS ATTRIBUTED TO INCORRECT INPUT VOLTAGE. TWO CORRECTIVE ACTION-PROCEDURE REVISED FOR OPEN-LOOP TORQUING TEST TO BE PERFORMED USING 2.0 VOLT INPUT ON MERCURY MISSILES. NEW HARNESS TRAYS DESIGNED AND INSTALLED IN MERCURY CANISTERS (DESIGN AND INSPECTION TECHNIQUES IMPROVED).						
CORRECTIVE ACTION-PROCEDURE REVISED FOR OPEN-LOOP TORQUING TEST TO BE PERFORMED USING 2.0 VOLT INPUT ON MERCURY MISSILES. NEW HARNESS TRAYS DESIGNED AND INSTALLED IN MERCURY CANISTERS (DESIGN AND INSPECTION TECHNIQUES IMPROVED).						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4130-F GYRO DISPLACEMENT	FAR 7-04250-3	74E 830114	FACTORY	YES	NEARFOOT NO C702506000
FAILURE MODE-DRIFT. THE DISPLACEMENT GYRO REPORTEDLY FAILED WHEN IT WAS FOUND TO BE NON-LINEAR IN SLAVING. ANALYSIS COULD NOT CONFIRM THE REPORTED FAILURE AND ATTRIBUTED IT TO TEST SET MALFUNCTION. HOWEVER, ANALYSIS FOUND THAT THE FIXED RESTRAINT DRIFT OF THE GYRO TO BE 4.8 DEGREES PER HOUR INSTEAD OF THE MAXIMUM ALLOWABLE OF 3 DEGREES PER HOUR. THIS FAILURE WAS ATTRIBUTED TO DISTORTED FLEXLEADS.						
CORRECTIVE ACTION-60/C INCORPORATED NEW HANDLING REQUIREMENTS SPECIFYING THE WARMUP, COOLDOWN, AND HANDLING PROCEDURE. THE VENDOR INCORPORATED BAFFLES INTO THE GYRO NEAR THE FLEXLEADS IN AN EFFORT TO PRECLUDE FAILURE FROM FLOW OR FLOATATION MATERIAL.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-99-04-4039C GYRO	FAR	830113	FACTORY	YES	NO
FAILURE MODE-OUT OF TOLERANCE. GYRO CAN WAS REJECTED FOR LOW PITCH DISPLACEMENT TORQUING GAINS. GYRO CAN WAS DESIGNED FOR PREVIOUS NZ MISSILE AND HAD HIGHER GAIN.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-SQUARE-A/B 6.20 PACKAGE	NZ-A9-04-4118-F SHRO-WIRING	FAR 27-44534-3	193D 830111	FACTORY	YES	60/C NO
FAILURE MODE-OPEN (ELEC) AT PRESCRIBED TIME. UPIN-MOTOR ROTATION-DETECTOR CIRCUIT WAS OBSERVED TO HAVE NO OUTPUT AFTER AN EXTENDED WARMUP WITHOUT POD COOLING DURING SYSTEM TESTS. CATHODE LEAD OF DIODE CR-6 OF THE SHRO FREQUENCY DIVIDER SUBASSEMBLY WAS FOUND NOT WELDED TO THE RIBBON CONNECTOR RESULTING IN AN INOPERATIVE FLIP-FLOP CIRCUIT.						

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CORRECTIVE ACTION-EMPHASIZED EXISTING PROGRAMS FOR WELD SCHEDULES TO INSURE ADEQUATE HEAT AND HOLDTIME AND A QUALITY CONTROL WELDERS CERTIFICATION PROGRAM.							993732
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4083-F RATE GYRO	FAR E7-04574-3	830109	BAFB	YES	MINNEAPOLIS-HO NO MEYWELL	998367
FAILURE MODE-STRUCTURAL. THE TWO RATE GYRO PACKAGE OUTPUT NULL VOLTAGE WAS HIGH. THIS CAUSED THE TORQUING GAIN TO HAVE AN OUTPUT WITH NO INPUT, AND HIGHER THAN NORMAL WITH AN INPUT APPLIED. THE FAILURE WAS DUE TO ECCENTRIC QUADRANT-1 EVER BARS IN THE RATE GYRO. ECCENTRICITY WAS PROBABLY DUE TO DROPPING OF GYRO CANISTER. CONTAMINATION WAS ALSO FOUND.							
CORRECTIVE ACTION-NONE.							995193
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-A9-04-4032F DISPLACEMENT GYRO TRANSFORMER	FAR E7-41002-897	1300 830109	FACTORY	NO	NO	
FAILURE MODE-SHORT ELECTRICAL. GYRO CAN WAS REJECTED FOR UNRD NO-GO INDICATION. SPINMOTOR TRANSFORMER HAD CRACKED CASE AND SHORT BETWEEN PRIMARY AND SECONDARY. ALL SPIN MOTORS FAILED TO RUN. FAILURE WAS ATTRIBUTED TO FAILURE OF 6 ROUND POWER SUPPLY. ALL GYROS FUNCTIONED NORMALLY AFTER SPINMOTOR TRANSFORMER WAS REPLACED.							
CORRECTIVE ACTION-UNDER-VOLTAGE SENSORS WERE PLACED AT MISSILE ELECTRIC POWER INPUTS.							994331
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4190-F CIRCUIT BOARD-RESISTOR	FAR E7-13318-1	2010 830109	FACTORY	NO	NO	
FAILURE MODE-FAIL DURING OPERATION. THE EMITTER-FOLLOWER CIRCUIT BOARD RESISTOR R-3 REPORTEDLY BURNED UP WHILE BEING TESTED IN THE TWO-RATE GYRO PACKAGE. ANALYSIS DETERMINED THAT R-3 WAS NOT DAMAGED BUT APPEARED SO DUE TO CONFORMANCE COATING DISCOLORATION. THE EMITTER-FOLLOWER FAILED DUE TO ABSENCE OF CALIBRATION RESISTORS R-6 AND R-9.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4091-F GYRO-DISPLACEMENT	FAR E7-04030-3	2010 830109	FACTORY	YES	KEARFOIT NO C708308000	
FAILURE MODE-ERRATIC OPERATION-GYRO OUTPUT SIGNAL WAS 180 DEGREES OUT OF PHASE WITH RESPECT TO TORQUING SIGNAL. FAILURE CONFIRMED DUE TO WIRING ERROR BY VENDOR IN SIGNAL GENERATOR HOUSING. HUMAN ERROR.							
CORRECTIVE ACTION-VENDOR CHANGED WIRING DIAGRAM OF GYRO TO ALLOW INTERCHANGING OF SIGNAL LEADS INTERNALLY TO ASSURE							

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CORRECT PHASING AND WILL PROHIBIT ANY EXTERNAL INTERCHANGING OF ANY LEADS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-98-04-4138-F GYRO-RATE/WIRING	PAR 35-04120-1	630104	FACTORY	YES HONEYWELL NO J88123A1	
FAILURE MODE-CONTAMINATION. THE RATE GYRO WAS REJECTED IN THE ELECTRONICS MANUFACTURING AREA WHEN AN INTERNAL INTERMITTENT SHORT-CIRCUIT OF SPIN MOTOR PHASE-C TO PHASE-B DEVELOPED. A SMALL BALL OF TIN, LEAD AND COPPER CONTAMINATION WAS FOUND BETWEEN THE PHASE-C FLEX-LEAD AND MOTOR HOUSING.						
CORRECTIVE ACTION-VEPCO MADE SHEETING CHANGES IN MANUFACTURING AND QUALITY-CONTROL TECHNIQUES TO ELIMINATE CONTAMINATION. CHANGES INCLUDE THE ELIMINATION OF SOLDER PUDDLING AT THE CASE SEAM, INCREASED FLUSHING TIME, AND MICROSCOPIC EXAMINATION OF THE INTERNAL PARTS OF THE GYRO.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-98-04-4090F GYRO DISPLACEMENT-RESISTOR	PAR 27-41002-909	1570 630104	WTR	YES NEARFOT NO	
FAILURE MODE-CONTAMINATION-YAW GYRO FINE HEATER VOLTAGE OSCILLATED BETWEEN 0 AND 70 VDC. FAILURE CONFIRMED DUE TO A SETTING OF DEPOSITED CARBON RESISTORS R-6 AND R-14 IN MAGAMP FEEDBACK.						
CORRECTIVE ACTION-VENDOR CHANGED DESIGN TO INCORPORATE METALLIC FILM RESISTORS IN CRITICAL POSITIONS IN THE CIRCUIT						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-98-04-4098-F RATE GYRO	PAR 27-41703-809	1570 630104	WTR	NO HONEYWELL NO	
FAILURE MODE-ERRATIC OPERATION. REMOTE RATE GYRO PACKAGE WAS REJECTED AS PART OF MATCHED SET WITH AUTOPILOT GYRO PACKAGE WHEN YAW DISPLACEMENT GYRO HEATER VOLTAGE WAS FOUND FLUCTUATING. FAILURE NOT IN REMOTE RATE GYRO PACKAGE. SEE PAR SP-98-04-4090-F FOR PRIMARY FAILURE.						
CORRECTIVE ACTION-NONE REQUIRED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4137F SARD/TRANSISTOR	PAR 27-41002-955	70E 630102	FACTORY	YES NO	
FAILURE MODE-FAIL DURING OPERATION. THE GYRO PACKAGE FAILED IN THE MISSILE FINAL CHECKOUT DOCK WHEN THE SPIN-MOTOR ROTATION-DETECTOR OUTPUT WAS LOW, TRANSISTOR #2 OF SUB/ASSEMBLY 1 OF CHANNEL B HAD HIGH EMITTER-TO-COLLECTOR LEAKAGE RESULTING IN MALFUNCTION OF THE FLIP-FLOP CIRCUIT.						

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOFLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE. EXACT CAUSE OF TRANSISTOR FAILURE COULD NOT BE DETERMINED BECAUSE OF DAMAGE TO ASSOCIATED CIRCUITRY DURING DEPOTTING OPERATION.							000408
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	N2-90-04-4015F AMPLIFIER-RESISTOR	FAR 27-44534-3	176D 021229	WTR	YES NO	MAGNETIC CONTR OLS CO. TC7C-1	003123
FAILURE MODE-ERRATIC OPERATION-ROLL FINE HEATER VOLTAGE OSCILLATED BETWEEN 0 AND 110 VOLTS. FAILURE ANALYSIS REVEALED RESISTOR IN MAGNETIC AMPLIFIER CHANGED VALUE FROM 215K TO 145K AND CAUSED A DIODE TO SHORT.							
CORRECTIVE ACTION-THE RESISTOR WAS CHANGED FROM CARBON TO METAL FILM. THE DIODE WAS REPLACED WITH ONE OF HIGHER INVERSE VOLTAGE RATING. REF MAGNETIC CONTROLS ENGINEERING CHANGE REQUEST 1808.							
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4064-F RATE GYRO SHRO	FAR 27-04574-3	021228	FACTORY	YES NO	MINNEAPOLIS-MO MEYELL JR3101AB	007769
FAILURE MODE-OUT OF TOLERANCE. SHRO SIGNAL FROM RATE GYRO BEING TOO LOW CAUSED BY IMPROPER APPLICATION OF EXTERNAL VOLTAGE. THIS DEMAGNETIZING THE SHRO MAGNET.							
CORRECTIVE ACTION-MAKE SHRO VOLTAGE INSENSITIVE TO WRONG VOLTAGES BEING APPLIED TO OUTPUT TERMINALS.							
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-4037F GYRO-TRANSFORMER	FAR 27-4100E-055	40F 021219	SHILLING	YES NO		003189
FAILURE MODE-SHORT. ELECTRICAL-GYRO CAN WAS REJECTED FROM MISSILE 46 F AT SHILLING AFB FOR A SHORT CIRCUIT IN A TRANSFORMER. SPIN MOTOR TRANSFORMER PRIMARY WINDINGS WERE OPEN, SECONDARY WINDINGS WERE SHORTED TOGETHER. HEAT FROM TRANSFORMER CRACKED MAG AMP CANE. CAUSE OF DAMAGE WAS NOT LEARNED.							
CORRECTIVE ACTION-NONE.							
AUTOFLOT-SQUARE-A/B GYRO PACKAGE	A-49-04-3591F THERMOSTAT	FAR 27-45045-805	134F 021218	FACTORY	YES NO		
FAILURE MODE-ELECTRICAL SHORT. THE GYRO TEMPERATURE LIGHT ON THE SELF-CHECK PANEL INDICATED NO-60 AT ALL TIMES AND PIN 2 ON J1 WAS SHORTED TO GROUND. CAUSED BY A SHORT-CIRCUIT BETWEEN PIN 2 OF THERMOSTAT 3-3, P/N 27-04593-3, AND IN CASE OF THE THERMOSTAT AS A RESULT OF INCORRECT SOLDER APPLICATION.							
CORRECTIVE ACTION-PER FAR-A-9-04-3850, PERSONNEL WERE CAUTIONED TO USE GREATER CARE IN ASSEMBLY, MANUFACTURING, AND INSPECTION SO PRODUCT QUALITY WILL BE COMPATIBLE WITH APPLICABLE MILITARY SPECIFICATIONS AND STANDARD ENGINEERING							

13 JUN 1988

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOTEST SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
PRACTICES.							096043
AUTOTEST-SQUARE-A/B GYRO PACKAGE	SP-99-04-4189-F RATE GYRO-SHRD	FAR 27-04974-3	2010 821218	FACTORY	YES NO	HONEYWELL JR3101A2	094826
FAILURE MODE-ELECTRICAL SHORT. THE RATE GYROSCOPE PIN MOTOR RATE DETECTOR OUTPUT WAS VERY LOW DUE TO BURNT AND PAR TIAL SHORTED WINDING. THE CAUSE OF THE BURNT SHRD WINDING COULD NOT BE DETERMINED.							
CORRECTIVE ACTION-NONE.							
AUTOTEST-SQUARE-A/B GYRO PACKAGE	A-99-04-4801-F RATE GYRO	FAR 27-01574-3	821217	FACTORY	YES NO	HONEYWELL	097702
FAILURE MODE-LEAK-EXTERNAL. REPORTED LEAKING OIL DUE TO CAUSES UNKNOWN.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED. OIL CONTAMINATION OF THE GYROSCOPE WAS ATTRIBUTED TO OTHER SOURCE.							
AUTOTEST-SQUARE-A/B GYRO PACKAGE	SP-99-04-4182-F DISPLACEMENT GYRO SHRD WINDINGS	FAR 7-JA130-3	821217	FACTORY	YES NO	50/C C702508000	097548
FAILURE MODE-SHORT-ELECT. 3 GYROS REJECTED FROM IFG AREA FOR SHRD VOLTAGE EITHER INSUFFICIENT OR NON EXISTENT. SHRD WINDINGS WERE SHORTED DUE TO INADVERTENT APPLICATION OF HIGH VOLTAGE WHILE GYROS WERE IN NEXT ASSY PACKAGE.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION STATED ON FAR.							
AUTOTEST-SQUARE-A/B GYRO PACKAGE	NZ-A9-04-3581F RATE GYRO THERMOSTAT	FAR 27-43045-803	1880 821217	FACTORY	YES NO		096033
FAILURE MODE-ELECTRICAL SHORT. THE GYRO TEMPERATURE LIGHT ON THE SELF-CHECK PANEL INDICATED NO-60 AT ALL TIMES AND PIN 2 ON J1 WAS SHORTED TO GROUND. THE FAILURES WERE CONFIRMED AND ATTRIBUTED TO SHORT CIRCUITS BETWEEN PIN 2 AND GROUND OF THERMOSTAT 8-3 (P/N 27-04583-3) IN BOTH TAO-RATE GYRO PACKAGES (S/Ns 809-11832 AND 811-0260). THE SHORT-CIRCUITS WERE CAUSED BY POOR SOLDERING TECHNIQUE DURING GYRO PACKAGE ASSEMBLY.							
CORRECTIVE ACTION-PER FAR NZ-A9-04-3630, PERSONNEL WERE CAUTIONED AND RE-INSTRUCTED TO USE GREATER CARE IN ASSEMBLY AND INSPECTION SO PRODUCT QUALITY WILL BE COMPATIBLE WITH APPLICABLE MILITARY SPECIFICATIONS AND BY ANALOG ENGINEERING PRACTICES.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	3F-99-04-4092-F GYRO-DISPLACEMENT SHRD	FAR 7-04250-3	821217	FACTORY	NO	KEARFOOT NO C702504000	996048
FAILURE MODE-OUT OF TOLERANCE. GYRO HAD LOW SHRD OUTPUT. FAILURE CONFIRMED DUE TO DEMAGNETIZED SHRD MAGNET-MOST PROBABLE CAUSE OF DEMAGNETIZATION IS HUMAN ERROR BY INADVERTENT APPLICATION OF VOLTAGE.							
CORRECTIVE ACTION-INVESTIGATION SHOWED THAT DEMAGNETIZATION IS CAUSED ONLY BY MISAPPLICATION OF EXTERNAL VOLTAGE-50 V/C INITIATED SPECIFIC INSTRUCTIONS TO FACTORY AND SITE PERSONNEL WARNING OF DAMAGE TO SHRD CIRCUIT BY INADVERTENT APPLICATION OF VOLTAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4062F SHRD WIRING	FAR 27-04374-3	821213	FACTORY	YES	50/C NO	998037
FAILURE MODE-OUT OF TOLERANCE-SHRD SIGNAL FROM RATE GYRO TOO LOW CAUSED BY IMPROPER APPLICATION OF 26 VAC CAUSING DEMAGNETIZATION OF SHRD MAGNET. THE ERRONEOUS VOLTAGE WAS THE RESULT OF A MISSILE HARNESS WIRING ERROR.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NZ-A9-04-3586F DISPLACEMENT GYRO TRANSISTOR 2M498	FAR 27-44334-3	821213	FACTORY	YES	TEXAS INSTRUMENTS NO NTS	996048
FAILURE MODE-CONTAMINATION. THE YAW GYRO OUTPUT WAS FOUND TO BE 2.7 VOLTS RATHER THAN THE EXPECTED 4.0 VOLTS DURING FACTORY CHECKOUT. A FAULTY WELDING AMPLIFIER IN THE TEST SET CAUSED AN ERRONEOUS INDICATION OF FAILURE. A DISPLACEMENT GAIN SWITCH FAILURE WAS UNCOVERED DURING THE ANALYSIS. THIS FAILURE WAS CAUSED BY A FAULTY TRANSISTOR 611 (2M498) IN THE YAW SIGNAL AMPLIFIER 3/M 398 WHICH WAS FAULTY DUE TO ENCAPSULATED MOISTURE DURING MANUFACTURE.							
CORRECTIVE ACTION-THE FAULTY TEST SET HAS BEEN REPAIRED. THE TRANSISTOR VENDOR HAS INSTALLED WELDING ATMOSPHERE MONITOR EQUIPMENT TO ELIMINATE MOISTURE FROM THE TRANSISTOR CASE WHILE BEING SEALED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HC-99-04-3587F DISPLACEMENT GYRO	FAR 27-41002-887	1300 821213	FACTORY	NO	NO	
FAILURE MODE-OUT OF TOLERANCE. THE VERNIER ROLL TORQUING VALVES WERE FROM 26 TO 31 PERCENT ABOVE NOMINAL DURING DISPLACEMENT ROLL TORQUING TEST. THE SPECIFICATION LIMITS ARE PLUS AND MINUS 25 PERCENT. THE FAILURE INDICATION IS ATTRIBUTED TO TOLERANCE BUILD-UP INVOLVING USING A VOLTAGE LEVEL LOWER THAN THAT USED TO CALIBRATE THE CANISTER AND TO TOLERANCES OUTSIDE OF THE CANISTER.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. THE RELIABILITY FAILURE ANALYSIS GROUP ARRANGED WITH THE SYSTEMS ENGINEERS							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUL 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
MG AND ENGINEERING PROCEDURES GROUP TO HAVE THE SYSTEM LEVEL TESTS PERFORMED AT THE LEVEL OF 2 VOLTS INSTEAD OF AT 7 HE LEVEL OF 0.4 VOLT FOR FITS CONTROL PROCEDURE 27-92393-1.							898048
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A162-0072/PC-CO-01-0013-003	COMPOSITE-FACTORY 27-44534-3	1820 821212	FACTORY	YES NO	60/C	899204
FAILURE MODE-FAIL DURING OPERATION-ALL YAW GYRO BIAS AND YAW INTEGRATOR FUNCTIONS WERE 33 PC1 LOW.							
SYSTEM EFFECT-OPERATION TOO LOW.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE LEVEL TESTING WERE REQUIRED.							
CORRECTIVE ACTION-THE GYRO PACKAGE WAS REPLACED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4119-F CIRCUIT BOARD-TRANSISTOR	FAR 27-41378-803	821212	FACTORY	YES NO		895731
FAILURE MODE-FAIL DURING OPERATION. THERMAL RUNAWAY OF TRANSISTOR Q6 RESULTED FROM AN INADEQUATE HEAT SINK.							
CORRECTIVE ACTION-A DESIGN CHANGE WAS MADE TO THE SIGNAL AND TORQUE AMPLIFIERS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4149-F GYRO-DISPLACEMENT	FAR 7-04250-3	2630 821212	FACTORY	YES NO	NEARFOTT C702306000	894884
FAILURE MODE-DRIFT. THE DISPLACEMENT GYRO FAILED WHEN IT WAS FOUND TO HAVE EXCESSIVE DRIFT. ANALYSIS FOUND THE FINE D RESTRAINT DRIFT OF THE GYRO WAS 15.28 DEGREES PER HOUR WHEREAS THE MAXIMUM ALLOWABLE IS 3 DEGREES PER HOUR. FAILURE E IS ATTRIBUTED TO DISTORTED FLEXLEADS.							
CORRECTIVE ACTION-60/C INCORPORATED NEW HANDLING REQUIREMENTS SPECIFYING THE WARMUP, COOLDOWN, AND HANDLING PROCEDU RES. THE VENDOR INCORPORATED BAFFLES INTO THE GYRO NEAR THE FLEXLEADS IN AN EFFORT TO PRECLUDE FAILURE FROM FLOW OF FLUTATION MATERIAL.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4051-F FILTER-ELECTRICAL	FAR 27-04848-3	821207	FACTORY	YES NO		897488
FAILURE MODE-OUT OF TOLERANCE-THE SHED BANDPASS FILTER WAS OUT OF TOLERANCE AT 1833 CPs.							
CORRECTIVE ACTION-WOME-UNIT DESTROYED ON REMOVAL FROM CIRCUIT BOARD.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4826F SW/D	FAR 27-43187-3	621207	FACTORY	YES	GO/C NO	894335
FAILURE MODE-OPEN ELECTRICAL. SW/D SUBASSEMBLY WAS REJECTED FOR AN OPEN CIRCUIT BETWEEN PINS 1 AND 6. THIS WAS DUE TO A DEFECTIVE WELD.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4174-F GYRO-DISPLACEMENT-WIRING	FAR 7-04250-3	621204	FACTORY	YES	REARFOIT NO C702306000	894535
FAILURE MODE-DRIFT. TWO DISPLACEMENT GYRO EXHIBITED HIGH DRIFT. THE FAILURES WERE CAUSED BY FLEXLEAD DISTORTION.							
CORRECTIVE ACTION-WARMUP, COOLDOWN, AND HANDLING REQUIREMENTS WERE INCORPORATED INTO APPLICABLE PROCEDURES. VENDOR IS INSTALLING BAFFLES IN THE GYROS NEAR THE FLEX-LEADS TO PRECLUDE FAILURE FROM FLOW OF FLUTATION MATERIAL.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-A9-04-3343F GYRO-DISPLACEMENT.	FAR 27-41002-899	621129	FACTORY	YES	REARFOIT NO	894706
FAILURE MODE-ELECTRICAL OPEN. THERE WAS NO OUTPUT FROM THE SPIN-MOTOR ROTATION DETECTOR (SMRD). THE FAILURE WAS CAUSED BY A BURNED AND BROKEN FLEXLEAD IN THE ROLL DISPLACEMENT GYRO MAKING THE GYRO INOPERATIVE.							
CORRECTIVE ACTION-GO/C INCORPORATED NEW HANDLING REQUIREMENTS INTO APPLICABLE PROCEDURES. (REF MEMO 550-2-5083 DATED MARCH 30, 1965. BAFFLES ARE BEING INCORPORATED INTO THE GYRO NEAR THE FLEXLEADS TO PRECLUDE FAILURE FROM FLOW OF FLUTATION MATERIAL.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	P1-600-01-21	COMPOSITE-B FACT	21F 621128	ETR	YES	YES	892236
FAILURE MODE-ERRATIC OPERATION. MEASUREMENT 8384X, SPIN MOTOR TEST OUTPUT WAS ERRATIC THROUGHOUT THE TEST. MOST OF THE MEASUREMENT CHANGES WERE NOT OF A NATURE TO BE VALID INDICATIONS OF GYRO SPEED ERRORS.							
SYSTEM EFFECT-ERRATIC OPERATION. MEASUREMENT 8384X SPIN MOTOR TEST OUTPUT WAS ERRATIC THROUGHOUT THE TEST. ONE POSSIBLE CAUSE IS AN AUTOPILOT CIRCUITRY PROBLEM.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-INVESTIGATE.							

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4019 GYRO, RATE	FAR 27-04874-S	821127	FACTORY	YES NO	WMEYVWELL NO J18101A2	098400
FAILURE MODE-OUT OF TOLERANCE. GYRO HAD HIGH NULL OUTPUT VOLTAGE. IN-PHASE COMPONENT WAS 54 MILLIVOLTS. CAUSE OF THE HIGH NULL VOLTAGE WAS NOT LEARNED.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-86-04-3396 GYRO-DISPLACEMENT	FAR 27-41002-855	821127	BYCAMORE	YES NO	REARFOTT	092032
FAILURE MODE-ELECTRICAL OPEN. THE SPIN-MOTOR ROTATION-DETECTOR (SMRD) LIGHT GAVE A NO-60 INDICATION. THE FAILURE WAS CONFIRMED AND WAS DUE TO A BROKEN PHASE B FLEXLEAD IN THE PITCH DISPLACEMENT GYRO.							
CORRECTIVE ACTION-60/C INCORPORATED NEW HANDLING REQUIREMENTS INTO APPLICABLE PROCEDURES (REF. MEMO 556-2-5063 DATED MARCH 20, 1963). THE VENDOR IS INCORPORATING BAFFLES IN THE GYRO NEAR THE FLEXLEADS TO PRECLUDE FAILURE FROM FLOW OF FLUTATION MATERIAL.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AC-63-0001/32-603-B0-73 DISPLACEMENT GYRO	CAPTIVE	75F 821128	32	YES NO		098823
FAILURE MODE-ERRATIC OPERATION. INADEQUATE SYNCHRONOUS SPEED BUILDUP OF THE GYROS.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. THE AUTOPILOT SPIN MOTOR FAILED.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-REPLACED THE GYRO CANISTER.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3569C DISPLACEMENT GYRO SMRD	FAR 27-41002-855	821123	ETR	YES NO	REARFOTT	
FAILURE MODE-ELECTRICAL OPEN. DURING AN ENGINE TRANSDUCER ALIGNMENT CHECK, THE SPIN-MOTOR ROTATION-DETECTOR (SMRD) SIGNAL WAS INTERMITTENT. IN ADDITION, THE ROLL DISPLACEMENT GYRO SIGNAL WAS 180 DEGREES OUT OF PHASE WITH RESPECT TO THE ROLL-RATE GYRO SIGNAL. THE REPORTED FAILURE WAS CONFIRMED AND WAS CAUSED BY BROKEN PHASE A AND B FLEXLEADS. THE INTERMITTENT SMRD SIGNAL WAS CAUSED BY INTERMITTENT CONTACT OF THE BROKEN FLEXLEADS. THE 180 DEGREE SIGNAL REVERSAL WAS DUE TO THE SPIN MOTOR RUNNING BACKWARDS WHICH RESULTED BECAUSE THE BROKEN PHASE-B FLEXLEAD HAD FLIPPED OVER MARKING CONTACT WITH THE PHASE-A WHICH WAS ALSO BROKEN. THE HOT SIDE OF PHASE-B WAS RESTING ON THE MOTOR PHASE-A POST. THE MOTOR SIDE OF PHASE-B, AND THE CLIP ON THE HOT PHASE-A POST SHOWED SEVERE ARC MARKS.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	DATE DIF	DATE DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-SPECIAL HANDLING REQUIREMENTS DURING TEST OPERATION WILL BE INCORPORATED INTO APPROPRIATE COMPS. A S OF APRIL 15, 1965 FURTHER ACTION IS CANCELLED BECAUSE OF LACK OF AUTHORIZED FUNDING TO CONTINUE FAILURE ANALYSIS AN D OBTAIN CORRECTIVE ACTION.								693532
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4035F 3MRD	PAR 27-04374-3	621121	FACTORY	NO	CONVAIR	NO JRB10142	693593
FAILURE MODE-OUT OF TOLERANCE. GYRO HAD LOW 3MRD OUTPUT. VOLTAGE WAS .35 VOLT SHOULD BE .50 VOLT. FAILURE WAS ATTRI BUTED TO MISAPPLICATION OF VOLTAGE TO 3MRD MAGNET RESULTING IN DEMAGNETIZATION.								
CORRECTIVE ACTION-NONE-CAUSE OF MISAPPLICATION OF VOLTAGE WAS NOT LEARNED.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4036F 3MRD	PAR 27-41393-3	621118	FACTORY	YES	50/C	NO	693597
FAILURE MODE-OUT OF TOLERANCE. 3MRD WAS REJECTED FOR NO OUTPUT. THE FAILURE WAS NOT CONFIRMED.								
CORRECTIVE ACTION-NONE-FAILURE NOT VERIFIED.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4048F 3MRD	PAR 27-43188-3	621115	FACTORY	YES	50/C	NO	694589
FAILURE MODE-OPEN (ELECT). THE 3MRD UNIT WAS REJECTED FOR NO OUTPUT. FAILURE ANALYSIS REVEALED WIRE WAS MISSING BET WEEN R2 AND C1. UNIT FUNCTIONED PROPERLY WHEN THE WIRE WAS INSTALLED.								
CORRECTIVE ACTION-60/C SUPERVISION WARNED SHOP PERSONNEL TO INSURE ALL CIRCUITS ARE WIRED CORRECTLY.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	99-90-04-3334F DISPLACEMENT GYRO 3MRD	PAR 27-41002-913	621114	WTR	YES	NO		693931
FAILURE MODE-ELECTRICAL OPEN. DURING A RUN OF PROCEDURE 27-94443-1 A SPIN-MOTOR-ROTATION- DETECTOR (3MRD) NO-60 WAS RECEIVED. THE REPORTED FAILURE WAS CONFIRMED AND WAS DUE TO A BROKEN 3MRD FLEAD IN THE ROLL DISPLACEMENT GYRO (P /N 7-04230-3, 8/N 34098).								
CORRECTIVE ACTION-CORRECTIVE ACTION WAS TAKEN BY THE VENDOR THROUGH INCORPORATION OF A HEAVIER FLEAD.								

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-9D-04-3338P GYRO-RATE	FAR 27-41703-809	621114	WTR	NO NO		094716
FAILURE MODE-OUT OF TOLERANCE. DURING A RUN OF PROCEDURE 27-94443-1 A NO-60 WAS RECEIVED FOR THE SPIN-MOTOR ROTATION DETECTOR (SMRD) SIGNAL. THE SUBJECT REMOTE-RATE GYROSCOPE PACKAGE WAS TESTED WITH ITS MATCHED AUTOPILOT GYROSCOPE PACKAGE (P/N 27-41002-813; S/N 009-0021) RECEIVED FOR FAILURE ANALYSIS ON 1.R.843247. THE FAILURE WAS FOUND IN THE AUTOPILOT GYROSCOPE PACKAGE. THERE WAS NO FAILURE IN THE RATE-GYRO PACKAGE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9P-04-4186-F RATE GYRO	FAR 27-45045-805	103F 621108	PLATTSMU RGM	NO NO		094130
FAILURE MODE-FAIL DURING OPERATION. THE TWO-RATE GYROSCOPE PACKAGE WAS REJECTED DURING A MARCHE PROCEDURE RUN. ANALYSIS COULD NOT CONFIRM THE REPORTED FAILURE AND CONCLUDED THAT THE REPORTED FAILURE INDICATION WAS DUE TO FAULTY AND IMPERATIVE TEST EQUIPMENT. THE MARCHE POWER SUPPLY AND THE 400-CYCLE POWER SUPPLY WERE REJECTED AT THE SAME TIME.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9P-04-4187-F DISPLACEMENT GYRO	FAR 27-41002-855	103F 621108	PLATTSMU RGM	YES NO		091287
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE AUTOPILOT GYROSCOPE PACKAGE REPORTEDLY FAILED MARCHE PROCEDURE 27-98401 CARD 304. ANALYSIS COULD FIND NO FAILURE AND CONCLUDED THAT THE MOST PROBABLE CAUSE OF THE FAILURE INDICATION WAS DUE TO EITHER THE 115-VOLT 400 CPS GYROSCOPE POWER SUPPLY OR THE MARCHE POWER SUPPLY REJECTED AT THE SAME TIME AS THE GYRO PACKAGE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	MC-99-04-3501-P RATE GYRO SMRD	FAR 27-41703-809	621107	FACTORY	YES NO	60/C	097287
FAILURE MODE-OUT OF TOLERANCE. DURING FACTORY CHECKOUT THE YAW RATE GYRO HAD LOW SMRD OUTPUT. FAILURE CONFIRMED. AT TRIBUTED TO DEMAGNETIZATION OF THE SMRD MAGNET. YAW RATE GYRO RETURNED TO VENDOR FOR COMPLETE ANALYSIS.							
CORRECTIVE ACTION-NONE.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3577F FILTER-ELECTRICAL,SWRD	FAR 27-04948-3	821107	FACTORY	NO	A.C.ELECTRIC NO
<p>FAILURE MODE-OUT OF TOLERANCE. SIX SPIN-MOTOR ROTATION-DETECTOR NETWORK FILTERS S/Ns 2051913, 2041243, 2041327, 2051909, AND 2031038 WERE REJECTED IN THE FACTORY FOR CAUSES UNKNOWN. FAILURE ANALYSIS DID NOT CONFIRM ANY FAILURE AS THE FILTERS MET THE SPECIFICATIONS UNDER WHICH THEY WERE PURCHASED AND RECEIVED. THESE FILTERS WOULD NOT MEET ONE ADDITIONAL REQUIREMENT IMPOSED AT A LATER DATE BUT COULD STILL BE USED IN SOME SELECTED NEXT ASSEMBLIES WHICH ARE COMPATIBLE.</p> <p>CORRECTIVE ACTION-NO CORRECTIVE ACTION. ALL FILTERS PURCHASED AND DELIVERED AFTER 8 AUG 1962 MEET ALL SPECIFICATIONS AND THEREFORE ARE NOT MARGINAL REQUIRING SELECTIVE USAGE IN NEXT ASSEMBLY INSTALLATIONS.</p>						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3568F DISPLACEMENT GYRO WIRE	FAR 7-04250	821107	FACTORY	YES	KEARFOTT NO C70-2508-000
<p>FAILURE MODE-ELECTRICAL OPEN, SEVEN GYROs, S/Ns 3823, 3383ABE, 3528B, 3949ABE, 4181, 4212ABDE, AND 3673AB, FAILED BECAUSE OF HIGH DRIFT OR NO SPIN MOTOR OPERATION. THE REPORTED FAILURES WERE CONFIRMED AND WERE DUE TO FLEXLEAD DISTORTION OR BREAKAGE.</p> <p>CORRECTIVE ACTION-60°C INCORPORATED NEW HANDLING REQUIREMENTS INTO APPLICABLE PROCEDURES. (REF. MEMO 556-2-5083). THE VENDOR HAS ADDED BAFFLES TO THE GYROs NEAR THE FLEX LEADS TO PRECLUDE DISTORTION AND BREAKAGE OF THE FLEXLEADS.</p>						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	W6-99-04-3492-F RATE GYRO	FAR 27-41703-809	821107	FACTORY	YES	NO
<p>FAILURE MODE-STRUCTURAL. THE REMOTE RATE GYRO WAS IR/D FOR A HIGH WALL OUTPUT VOLTAGE. THE PITCH-RATE GYRO HAD A WALL OF 80MV. DISASSEMBLY ANALYSIS REVEALED A DISTORTED SET OF QUADRILEVERS. THE QUADRILEVERS WERE PROBABLY DISTORTED WHEN THE GYRO WAS SUBJECTED TO A MECHANICAL SHOCK.</p> <p>CORRECTIVE ACTION-RECOMMENDED USING RUBBERIZED TAPE OR INSERT CATALYST FOAM IN HARD SURFACED HANDLING AREAS.</p>						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	4-99-04-3564F CIRCUIT BOARD-TRANSISTOR	FAR 89-04903-002	821108	FACTORY	YES	GENERAL ELECTRIC NO IC
<p>FAILURE MODE-OUT OF TOLERANCE. DURING BENCH TESTS, THE TRANSISTOR APPEARED TO BE NOISY. FAILURE ANALYSIS REVEALED THAT THE TRANSISTOR MET ALL MANUFACTURER'S SPECIFICATIONS AND WAS NOT PARTICULARLY NOISY. THE ORIGINAL MALFUNCTION WAS PROBABLY CAUSED BY SOME DEFECT IN THE NEXT ASSEMBLY CIRCUIT BOARD.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

19 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIT	SITE TIME DIT	PPI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-FACTORY PERSONNEL WERE REQUESTED TO FORWARD ALL CIRCUITRY INVOLVED FOR FAILURE ANALYSIS WHENEVER A FAILURE OCCURS. NO FURTHER CORRECTIVE ACTION.						096044
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4193-C SWRD	FAR 27-43186-3	87F 621106	FACTORY	YES	60/C NO	094427
	FAILURE MODE-FAIL DURING OPERATION. THE SPIN-MOTOR ROTATION-DECTOR SUBASSEMBLY REPORTEDLY HAD NO OUTPUT. FAILURE ANALYSIS WAS CANCELLED BECAUSE THE SUBJECT SWRD SUBASSEMBLY WAS SCRAPPED.						
	CORRECTIVE ACTION-NONE.						092033
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3598F AMPLIFIER-SIGNAL	FAR 27-41002-893	621105	ETR	NO	NO	
	FAILURE MODE-OUT OF TOLERANCE. DURING PACKAGE TESTS, THE YAW RATE GAIN WAS MEASURED TO BE 3.75 PERCENT BELOW NOMINAL (MAX ALLOWABLE DEVIATION IS 3 PERCENT). THE FAILURE WAS CONFIRMED AND WAS DUE TO A MISCALIBRATED SIGNAL AMPLIFIER. THE MISCALIBRATION WAS MOST PROBABLY THE RESULT OF AN IMPROPERLY SET 115 VAC INPUT TO THE GYROSCOPE PACKAGE. FAILURE WAS BY AGE TEST EQUIPMENT.						
	CORRECTIVE ACTION-A NEW METER ON THE 115 VAC INPUT DIRECTLY AT THE GYROSCOPE PACKAGE WAS INSTALLED ON THE FACTORY TEST SETS IN MAY 1962. REF. CIC 71030-347-3-477, MAP 3487.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	FAR A-99-04-4103F AMPLIFIER/RESISTOR	FAR 27-41368-607	621102	FACTORY	YES	NO	097446
	FAILURE MODE-STRUCTURAL. AMPLIFIER WAS REJECTED WHEN, DURING REMOVAL, RESISTOR R-8 WAS FOUND CRACKED. R-8 IS A LOAD FOR THE MULLING AMPLIFIER IN THE TEST SET. ITS VALUE CHANGED FROM 1000OHMS TO 1800 OHMS DUE TO EXCESSIVE OUTPUT FROM THE MULLING AMPLIFIER.						
	CORRECTIVE ACTION-FAR A-99-04-3671 INFO REQUESTED THAT MULLING AMPLIFIER OUTPUTS BE CHECKED SO THAT ALL DISCREPANCIES WILL BE CORRECTED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-4063-F CIRCUIT BOARD-CAPACITOR	FAR 27-41002-893	18F 621102	ETR	YES	NO	
	FAILURE MODE-ELECTRICAL OPEN-DURING FLIGHT ACCEPTANCE COMPOSITE TEST PITCH SIGNAL AMPLIFIER OUTPUT DID NOT FOLLOW THE PITCH DISPLACEMENT GYRO SIGNAL. FAILURE CONFIRMED DUE TO DEFECTIVE WELD JOINT IN TANTALUM CAPACITOR C-8.						

GENE - DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
	CORRECTIVE ACTION-NEW WELDING AND INSPECTION TECHNIQUES WERE INCORPORATED BY VENDOR OF THE CAPACITOR TO CORRECT PROBLEM OF DEFECTIVE WELD JOINTS.					
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	AAS-0104/F1-8CO-01-18 PITCH GYRO AMPLIFIER	COMPOSITE-B FACT	16F 621102	11	YES NO	804674
FAILURE MODE-OUT OF TOLERANCE. WHILE RUNNING SAP TEST IT WAS OBSERVED THAT THE PITCH GYRO AMPLIFIER HAD CHANGED GAIN.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. ERRATIC MOVEMENT OF DOORSTER ENGINES IN PITCH.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-GYRO CAN REMOVED AND IR/D. REPLACEMENT CAN BE INSTALLED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3559 PITCH DISPLACEMENT GYRO	FAR 27-41002-855	AGF 621028	WAFB	YES NO	803723
FAILURE MODE-OUT OF TOLERANCE. INSUFFICIENT MOVEMENT ON POSITIVE TORQUING GAIN TEST. IT WAS REPORTED THAT AN EXCITATION TRANSFORMER AND OTHER COMPONENTS WERE REJECTED AT APPROXIMATELY THE SAME TIME AS THIS REPORTED FAILURE. THE EXCITATION TRANSFORMER WAS NOT RECEIVED FOR FAILURE ANALYSIS.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	AX62-0061/ARI41-0-1-131/PC-CO-01-0 COMPOSITE-FACTORY	131D 621028	FACTORY	NO	60/C NO	809211
FAILURE MODE-FAIL DURING OPERATION. CHANNEL 7 OF SARBORN RECORDER MONITORING SUSTAINER PITCH INDICATED A POSITIVE S GYRO INPUT AT 144 SECONDS WHEN A NEGATIVE PITCH PROGRAM TORQUING SIGNAL WAS EXPECTED. THIS WAS CAUSED BY A FAULTY NULLING AMPLIFIER IN THE AGE GYRO NULLING LOOP.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNAL. AT 144 SECONDS SUSTAINER PITCH INDICATED A POSITIVE SERVO INPUT WHEN A NEGATIVE PITCH PROGRAM TORQUING WAS EXPECTED.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. POST-COMPOSITE TESTING REQUIRED.						
CORRECTIVE ACTION-REPLACED THE FAULTY NULLING AMPLIFIER IN THE AGE GYRO NULLING LOOP.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4021F GYRO, RATE	FAR 27-04574-3	821028	FACTORY	YES NO	JRS10142
FAILURE MODE-CONTAMINATION. GYRO HAD LOW TORQUING SENSITIVITY. FAILURE WAS ATTRIBUTED TO A CONTAMINATED SIGNAL BEARING.						

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
							090313
	CORRECTIVE ACTION-VENDOR INSTITUTED 100 PERCENT INSPECTION OF ALL GIMBAL BEARINGS FOR CONTAMINATION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4140-F GYRO-DISPLACEMENT/AMPLIFIER	FAR 27-41376-815	821025	FACTORY	YES NO		090324
FAILURE MODE-FAIL DURING OPERATION. THE TORQUE AMPLIFIER FAILED WITH BOTH OUTPUT TRANSISTORS (2N4339) SHORTED AND THE OUTPUT TRANSFORMER T2 BURNED INSIDE. IT IS NOT KNOWN WHICH PIECE PART FAILED FIRST, SINCE A SHORT IN THE PRIMARY OF THE TRANSFORMER OR A SHORT IN EITHER TRANSISTOR WOULD RESULT IN EXCESSIVE CURRENT WHICH COULD DAMAGE THE OTHER PARTS.							
	CORRECTIVE ACTION-THE MANUFACTURER OF THE TRANSFORMER IS USING PERFORATED SOBBINGS TO INSURE ADEQUATE IMPREGNATION OF WINDINGS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4100-F AMPLIFIER	FAR 27-41876-907	821025	FACTORY	NO NO		090375
FAILURE MODE-FAIL DURING OPERATION. SIGNAL AMPLIFIER STARTED TO SMOKE DURING TESTS. VISUAL EXAMINATION SHOWED SEVERAL COMPONENTS WERE BURNED DUE TO BURNED TORQUE AMPLIFIER IN SAME MODULE. SEE FAR A-99-04-4140-F FOR PRIMARY FAILURE OF TORQUE AMPLIFIER.							
	CORRECTIVE ACTION-NONE REQUIRED. BURNING OF SIGNAL AMPLIFIER WAS SECONDARY FAILURE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3558F DISPLACEMENT GYRO	FAR 27-41002-855	80F 821023	WAFB	YES NO		090530
FAILURE MODE-FAIL DURING OPERATION. DURING A MARCHE CHECKOUT, A WRONG SIGNAL WAS SENT OUT. THE GYRO WOULD NOT MULL. NO DISCREPANCY WAS FOUND. IT WAS REPORTED THAT AN EXCITATION TRANSFORMER AND OTHER COMPONENTS WERE REJECTED AT APPROXIMATELY THE SAME TIME AS THIS REPORTED FAILURE. NONE OF THESE COMPONENTS WERE RECEIVED FOR ANALYSIS.							
	CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	8P-90-04-3474-F DISPLACEMENT GYRO	FAR 27-41002-813	821025	WTR	NO NO		
FAILURE MODE-FAILED DURING OPERATION. THE AUTOPILOT GYRO PKG. WAS IN/D FOR A CONFIDENCE CHECK WHEN THE MISSILE UNBUILT. LEGAL MATTER WAS SHORTED BY MOISTURE. RETEST OF THE GYRO PKG DID NOT DISCLOSE ANY FAILURES INDUCED BY THE SHORTED UNBUILT PLUG.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							894189
	CORRECTIVE ACTION-EC1174 INCORPORATED TO MORE EFFECTIVELY SEAL UMBILICAL INTERFACE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3473 REMOTE-RATE GYRO	FAR 27-41703-809	621022	WTR	NO NO		894188
	FAILURE MODE-OUT OF SPECIFICATION. THE ASSOCIATED UMBILICAL PLUG HAD A SHORT CAUSED BY MOISTURE. THE GYRO PACKAGE WAS AS IN/D FOR A CONFIDENCE CHECK. NO INDUCED FAILURE WAS FOUND IN THE GYRO PKG.						
	CORRECTIVE ACTION-EC1174 INCORPORATED TO IMPROVE THE INTERFACE SEAL OF PLUG.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-90-04-4099-F DISPLACEMENT GYRO	FAR 27-41008-893	72F 621020	DAFS	YES NO	YES REARFOOT	893878
	FAILURE MODE-OUT OF TOLERANCE. PITCH TORQUING GAINS TOO HIGH.						
	CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED. NO ADDITIONAL INFORMATION COULD BE OBTAINED FROM AF OPERATIONAL SITE						
	CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED. NO ADDITIONAL INFORMATION COULD BE OBTAINED FROM AF OPERATIONAL SITE						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HC-AR-04-3482-F RATE GYRO EMITTER BOARD	FAR 27-41703-809	1300 121019	FACTORY	YES NO		894206
	FAILURE MODE-ELECTRICAL OPEN. THE RATE GYRO PACKAGE WAS IN/D WHEN THE PITCH SIGNAL WENT NEGATIVE FOR A POSITIVE SIG NAL. FAILURE WAS TRACED TO AN UNSOLDERED WIRE FROM GYRO TO TERMINAL 14 ON THE EMITTER BOARD IN THE RATE PACKAGE.						
	CORRECTIVE ACTION-INSPECTION INSTRUCTED IT: PERSONNEL WORKING ON SIMILAR ASSEMBLIES TO USE THEEZERS OR A SOLDERING AID WHEN CHECKING TERMINAL WIRE SOLDERED JOINTS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4004F DISPLACEMENT GYRO POWER AMPLIFIER	FAR 27-45202-801	621018	FACTORY	YES NO		894396
	FAILURE MODE-ELECTRICAL SHORT. TWO CHOKES IN POWER AMPLIFIER 27-41381-1 WERE BURNED IN A CONDITION WAS ATTRIBUTED TO A SHORT CIRCUIT EXTERNAL TO THE GYRO CANISTER. THE REASON FOR THE SHORT CIRCUIT WAS NOT LEARNED.						
	CORRECTIVE ACTION-NONE. NO CAUSE OF THE SHORT CIRCUIT NOT DETERMINED.						

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3595F CIRCUIT BOARD	FAR 27-43229-3	8E1016	SAN DIEG O	YES NO		982034
FAILURE MODE-FAIL DURING OPERATION. DURING A MANUFACTURING TEST, THERE WAS NO OUTPUT FROM CHANNELS 1 OR 2 OF THE IT EN CIRCUIT BOARD. FUNCTIONAL TESTING CONFIRMED THE FAILURE. CHANNEL 1 SUB-ASSEMBLY P/N 27-43183-3 S/N 3189 CONTAINED A SHORTED TEST INPUT DIODE (CR2) AND LOW GAIN OF TRANSISTOR Q1. CHANNEL 2 SUB-ASSEMBLY P/N 27-43183-3 S/N 3226 CONTAINED OPEN-CIRCUITED DIODES (CR1 AND CR2) AND HIGH 1 CBO TRANSISTOR Q1. THIS TYPE OF FAILURE COULD ONLY HAVE BEEN CAUSED BY MISAPPLICATION OF VOLTAGE.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION. RELIABILITY FAILURE ANALYSIS ENGINEERS ARE ENGAGED WITH COGNIZANT DESIGN ENGINEERS IN AN ATTEMPT TO EFFECT A CIRCUIT CHANGE PREVENTING DAMAGE TO SPIN MOTOR ROTATION DETECTOR (SMRD) CIRCUITRY IF VOLTAGE IS INADVERTENTLY APPLIED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-69-04-4017-C GYRO-RATE	FAR 27-04574-3	8E1018	FACTORY	YES NO	MINNEAPOLIS NO MEYHILL JRS101A2	989127
FAILURE MODE-OUT OF TOLERANCE-GYRO HAD HIGH NULL OUTPUT.							
CORRECTIVE ACTION-UNKNOWN GYRO WAS RETURNED TO VENDOR FOR REPAIR.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-89-04-3844F GYRO-RATE	FAR 27-04574-3	8E1018	FACTORY	YES NO	MINNEAPOLIS NO MEYHILL JRS101A2	984708
FAILURE MODE-OUT OF SPECIFICATION. THE SPIN-MOTOR ROTATION DETECTOR (SMRD) OUTPUT WAS LOW. THE FAILURE WAS NOT CONFIRMED. FAILURE ANALYSIS INDICATED THAT THERE WAS NO FAILURE IN THE SUBJECT GYRO.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-89-04-3496-F RATE GYRO SMRD	FAR 27-04574-3	JRS101A2	FACTORY	YES NO	MEYHILL NO	989770
FAILURE MODE-OUT OF SPECIFICATION. RATE GYRO IN/D FOR LOW SMRD OUTPUT SIGNAL. FAILURE TESTS INDICATED A DEMAGNETIZE D SPIN-MOTOR ROTATION-DETECTOR MAGNET. FAILURE CAUSED BY MISAPPLICATION OF EXTERNAL VOLTAGE.							
CORRECTIVE ACTION-NONE. SOURCE OF MISAPPLICATION OF VOLTAGE COULD NOT BE DETERMINED.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1969

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3329F	FAR 27-41002-855	681013	WALKER	NO		9883641
FAILURE MODE-OUT OF TOLERANCE-DURING SYSTEMS TESTS, A NO-GO WAS RECEIVED FOR CARD 937 OF MAPCHE DECK 451 INDICATING AN OUT-OF-TOLERANCE FOR YAW DISPLACEMENT GAIN WITH A 1-VOLT INPUT. THE REPORTED FAILURE OF HIGH DISPLACEMENT GAIN WAS AS CONFIRMED AND WAS DUE TO A MISCALIBRATED YAW SIGNAL AMPLIFIER. THE MISCALIBRATION WAS DUE TO AN INCORRECT DISPLACEMENT TRIGGER SETTING IN THE GYROSCOPE TEST SET.							
CORRECTIVE ACTION-FACTORY TEST EQUIPMENT WAS REPAIRED ON NOVEMBER 1, 1952.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4139-C GYRO-DISPLACEMENT/BOARD	FAR 27-41002-867	681012	FACTORY	YES NO		988327
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. NO SPIN-MOTOR ROTATION-DETECTOR OUTPUT WAS RECEIVED FROM THE ROLL DISPLACEMENT GYRO.							
CORRECTIVE ACTION-NONE. ANALYSIS WAS CANCELLED AND THE PART REPAIRED BECAUSE MANUFACTURING CONTROL STATED THAT THE PACKAGE WAS A SEARCH-FOR-CRITICAL-WEARNESS PACKAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4039-F RATE GYRO	FAR 27-04374-3	681010	FACTORY	NO NO	MINNEAPOLIS-NO METWELL JR3101AZ	988363
FAILURE MODE-OUT OF TOLERANCE. FAILED TO OPERATE WITHIN SPECIFICATIONS OF MAPCHE PROCEDURE 27-38451. ALL READINGS WERE HIGH-OUT OF TOLERANCE. THE FAILURE WAS NOT CONFIRMED. MAPCHE PROCEDURES MEASURE ONLY TOTAL HALL AND THE GYRO SHOULD NOT HAVE BEEN REJECTED.							
CORRECTIVE ACTION-NONE. FAILURE UNCONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4027F GYRO DISPLACEMENT	FAR 7-04250-3	681010	FACTORY	YES NO	REARFOIT NO C70-2308-000	988312
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE- COMPONENT WAS REJECTED FOR NONLINEAR TORQUING CHARACTERISTIC. FAILURE WAS NOT CONFIRMED HOWEVER EXCESSIVE FIXED RESTRAINT DRIFT WAS FOUND. THE DRIFT WAS ATTRIBUTED TO A DISTORTED FLEX LEAD. TORQUING NONLINEARITY WAS ATTRIBUTED TO A NONLINEAR TORQUE AMPLIFIER.							
CORRECTIVE ACTION-NONE ON REPORTED FAILURE. GDC INSTITUTED SPECIAL HANDLING AND WARM UP REQUIREMENTS FOR THE DISPLACEMENT GYRO. REARFOIT INCORPORATED BAFFLES IN THE GYRO TO PREVENT FLEX LEAD DAMAGE DUE TO FLOW OF FLUTATION MATERIAL.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1988

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3537F GYRO-RATE SHRD	FAR 27-04374-3	981010	FACTORY	YES NO	MINNEAPOLIS-MO KEYWELL JRS101A2	894719
FAILURE MODE-OUT OF TOLERANCE. DURING A FACTORY MARCHE RUN, THE GYRO FAILED TO OPERATE WITHIN PRESCRIBED LIMITS. THE REPORTED FAILURE WAS CONFIRMED. THE SPIN-MOTOR ROTATION DETECTOR (SHRD) VOLTAGE WAS BELOW SPECIFICATION. THE CAUSE WAS A PARTIALLY DEMAGNETIZED SHRD MAGNET.							
CORRECTIVE ACTION-TW 904-90F 107-116 DATED JULY 28, 1982 WAS SENT TO ALL SITES AND DISTRIBUTED TO FACTORY PERSONNEL INDICATING DAMAGE THAT CAN BE INTRODUCED IN THE SHRD CIRCUITRY BY INADVERTENT VOLTAGE APPLICATION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	W6-99-04-3489-F DISPLACEMENT GYRO	FAR 27-41002-897	981010	FACTORY	NO NO	60/C	894436
FAILURE MODE-OUT OF TOLERANCE. THE YAW DISPL. GYRO REPORTEDLY EXHIBITED STICKTION. FAILURE WAS TRACED TO TEST EQUIPMENT. FAILURE OF TEST SET CAUSED STICKTION INDICATIONS.							
CORRECTIVE ACTION-NONE. FAILED TEST SET NOT SUBMITTED FOR FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4008F RATE GYRO	FAR 27-04374-3	981009	FACTORY	YES NO	MINNEAPOLIS-MO KEYWELL JRS101A2	898647
FAILURE MODE-OUT OF TOLERANCE. HIGH NULL VOLTAGE WAS INDICATED.							
CORRECTIVE ACTION-USE PADDING ON WORK BENCHES WHERE GYROs ARE INSTALLED AND PADDED INSERTS IN GYRO HANDLING CONTAINERS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3530F RATE GYRO	FAR 27-04374-3	981009	FACTORY	YES NO	MINNEAPOLIS-MO KEYWELL JRS101A2	898046
FAILURE MODE-CONTAMINATION. DURING MANUFACTURING TESTS, THE GYROSCOPE EXHIBITED A HIGH NULL OUTPUT VOLTAGE. SEVERE CORROSION WAS FOUND ON THE SIGNAL GENERATOR CAP.							
CORRECTIVE ACTION-THE VENDOR HAS TAKEN CORRECTIVE ACTION. EFFECTIVE NOVEMBER 18, 1982, 100 PERCENT VISUAL EXAMINATION OF THE SIGNAL GENERATOR FOR CONTAMINATION WAS INSTITUTED. REF-REPORT JRS-1092-1 DATED OCTOBER 1982.							

GENERAL DYNAMICS
CONVAIR DIVISION

19 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3586F AMPLIFIER-TRANSISTOR.	FAR 27-41002-893	821009	ETR	YES NO		092031
FAILURE MODE-OUT OF TOLERANCE. THE GAIN OF THE YAW-RATE SIGNAL AMPLIFIER WAS FOUND TO BE LOW. THE FAILURE WAS CONFIRMED. THE LOW GAIN OF THE YAW SIGNAL AMPLIFIER WAS CAUSED BY ONE OR MORE OF THE TRANSISTOR AMPLIFIERS EXHIBITING A GAIN CHANGE AFTER CALIBRATION. THE PROBABLE CAUSE FOR THE GAIN CHANGE IS CHANNELING IN A TRANSISTOR.							
CORRECTIVE ACTION-RAR A-89-04-3622 WAS WRITTEN REQUESTING THE AUTOPILOT DESIGN GROUP TO INITIATE A REQUIREMENT FOR SCREENING TRANSISTORS TO MINIMIZE CHANNELING. IT WAS DETERMINED THAT THE SCREENING TRANSISTORS FOR CHANNELING WAS NOT ECONOMICALLY FEASIBLE CONSIDERING THE FEW INSTANCES (3) WHICH HAVE BEEN REPORTED. NO CORRECTIVE ACTION.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-89-04-3510F RATE GYRO SHRD	FAR 27-04374-3	821009	FACTORY	YES NO	YES MINN. MONEYMEL L JR3101A2	097227
FAILURE MODE-OUT OF TOLERANCE. LOW SHRD OUTPUT DURING MFG TEST.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-89-04-4214C GYRO, SHRD	FAR 27-41002-893	821009	FACTORY	YES NO	YES 60/C NO	092743
FAILURE MODE-OUT OF TOLERANCE. GYRO CAN WAS REJECTED FOR SHRD NO-GO SIGNAL.							
CORRECTIVE ACTION-NO ANALYSIS WAS PERFORMED, THEREFORE NO CORRECTIVE ACTION TAKEN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	HG-89-04-3506-F GYRO/DISPLACEMENT, SHRD	FAR 27-41002-897	821004	FACTORY	YES NO	YES 60/C NO	097291
FAILURE MODE-ERRATIC OPERATION. SHRD LAMP EXTINGUISHED 3 TO 4 MINUTES DURING CHECK TO PROCD. 27-29854-BK-1C.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3586F DISPLACEMENT GYRO WIRE	FAR 27-41002-893	821004	FACTORY	YES NO	YES REARFOIT NO	
FAILURE MODE-ELECTRICAL OPEN. IN EACH CASE THE FAILURE INDICATION WAS A SPIN-MOTCA ROTATION-DETECTOR (SHRD) NO-GO 1 NOTIFICATION. (GYRO PACKAGES 8/W 108-0128, 808-0280, AND 108-0191). THE FAILURES WERE TRACED TO FLEXLEAD BREAKAGE IN THE							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
E ROLL GYROS.							006042
CORRECTIVE ACTION-AN IMPROVED FLEXLEAD DESIGN WILL BE INCORPORATED AS SOON AS POSSIBLE ON ALL NEW GYROS AND ALL REPAIRED GYROS THAT MUST BE DISASSEMBLED TO A LEVEL THAT EXPOSES FLEXLEAD ASSEMBLIES. NEW HANDLING REQUIREMENTS HAVE BEEN INCORPORATED INTO APPLICABLE GYRO PROCEDURES. BAFFLES ARE BEING INCORPORATED INTO GYROS NEAR FLEXLEADS TO PREVENT FLEXLEAD BREAKAGE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3329 GYRO-RATE	FAR 27-04374-3	821002	FACTORY	YES NO	MINNEAPOLIS-HO NO MEYWELL JRS 101AR	004717
FAILURE MODE-ELECTRICAL OPEN-TERMINAL 6 WAS BROKEN OFF AS IT WAS TOUCHED WITH A SOLDERING IRON. THE RATE GYROSCOPE FAILURE IS ATTRIBUTED TO SOLDER TERMINAL 6 BEING BROKEN AND SOLDERED TOGETHER. WHEN HEAT WAS APPLIED TO THE TERMINAL DURING ASSEMBLY THE REPAIRED TERMINAL FELL APART. THE PERSON RESPONSIBLE FOR BREAKING AND SOLDERING THE TERMINAL COULD NOT BE IDENTIFIED.							
CORRECTIVE ACTION-THE VENDOR AND GD/C PERSONNEL WHO HANDLE THE RATE GYROSCOPE WERE INFORMED OF THE CAUSE OF FAILURE. THEY WERE ALSO REQUESTED TO MAINTAIN A MORE VIGILANT HANDLING AND INSPECTION PROGRAM TO PREVENT ANY RECURRENCE OF THIS FAILURE. (REF-RAR A-99-04-3617).							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3331F GYRO-DISPLACEMENT THERMOSTAT	FAR 27-41002-895	821002	ETR	YES NO		004711
FAILURE MODE-CONTAMINATION. THE PITCH DISPLACEMENT COARSE HEATER THERMOSTAT CONTROL DID NOT CUT OUT AT THE CORRECT TEMPERATURE SETTING. THE FAILURE WAS CONFIRMED. THE COARSE HEATER THERMOSTAT MALFUNCTIONED BECAUSE IT WAS PITTED DUE TO EXCESSIVE CURRENT THROUGH THE CONTACTS CAUSED BY SHORTING AND BURNING OF THE HEATER BLANKET. THE BLANKET OVERHEATED BECAUSE TAPE ON THE INSIDE OF THE BLANKET CUT DOWN HEAT TRANSFER.							
CORRECTIVE ACTION-RAR A-98-04-3083 WAS WRITTEN TO THE VENDOR REQUESTING THAT TAPE NOT BE USED DURING THE MANUFACTURING CYCLE OF THE GYROSCOPE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3499-F AMPLIFIER-PITCH SIGNAL	FAR 27-41002-835	821002	WALKER	NO NO		002749
FAILURE MODE-FAIL DURING OPERATION. THE GYRO PKG WAS IR/D WHEN THE ENGINES COULD NOT BE SIMULATED IN PITCH. FAILURE WAS TRACED TO BURNED OUT SIGNAL AMPLIFIER (27-41878-807). BURN OUT WAS CAUSED BY MISAPPLICATION OF EXTERNAL VOLTAGE.							
CORRECTIVE ACTION-NONE. SOURCE OF EXTERNAL VOLTAGE NOT KNOWN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3318-F RATE GYRO	FAR 27-04374-3	821000	FACTORY	YES NO	MINN. HONEYWELL L JRS1	897232
FAILURE MODE-CONTAMINATION. HIGH NULL OUTPUT VOLTAGE DURING TOP PK6 MFG TEST. CONFIRMED. CAUSE OF FAILURE WAS METAL LIC CONTAMINATION IN VICINITY OF SIGNAL PICKOFF. PIECE OF WIRE BENT AT RIGHT ANGLE ON SURFACE OF PICKOFF ROTOR SHAFT							
CORRECTIVE ACTION-VENDOR CHANGED INSPECTION, MFG TECHNIQUES, AND PROCESS CONTROL AS DOCUMENTED IN MINN. HONEYWELL R EPORT JRS-1042-1.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3315-F RATE GYRO	FAR 27-04374-3	821000	FACTORY	YES NO	MINN. HONEYWELL L JRS101A2	897233
FAILURE MODE-OUT OF TOLERANCE. HIGH OUTPUT NULL VOLTAGE DURING TOP PK6 MFG TEST. FAILURE CONFIRMED. CAUSE OF FAILURE E NOT DETERMINED. PROBABLE SHOCK DAMAGE DURING HANDLING.							
CORRECTIVE ACTION-RAR A-99-04-3610 ISSUED. MFS 21.36.5 REVISED ON HANDLING PROCEDURES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3314-F RATE GYRO	FAR 27-04374-3	821000	FACTORY	YES NO	MINN. HONEYWELL L JRS101A2	897234
FAILURE MODE-OUT OF TOLERANCE. HIGH OUTPUT VOLTAGE DURING TOP PK6 TEST. CONFIRMED. DUE TO DISTORTED QUADRILEVER RES ULTING FROM PROBABLE HIGH SHOCK INPUT DURING MFG. PROCESS.							
CORRECTIVE ACTION-RAR A-99-04-3610 ISSUED. MFS 21.36.5 REVISED TO INCLUDE USE OF INSERT CATALYST FOAM OR RUBBERIZED MAIR TO PROTECT GYRO ASSY DURING FACTORY HANDLING.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3313-F RATE GYRO	FAR 27-04374-3	821000	FACTORY	YES NO	MINN. HONEYWELL L JRS101A2	897234
FAILURE MODE-OUT OF TOLERANCE. HIGH OUTPUT NULL VOLTAGE DURING TOP PK6 TEST. CONFIRMED. ATTRIBUTED TO DISTORTED QUA DRILEVER RESULTING FROM PROBABLE HIGH SHOCK INPUT DURING MFG. PROCESS.							
CORRECTIVE ACTION-RAR A-99-04-3610 ISSUED. MFS 21.36.5 REVISED TO INCLUDE USE OF INSERT CATALYST FOAM OR RUBBERIZED MAIR TO PROTECT GYRO DURING FACTORY HANDLING.							

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-3470-F GYRO-BMRD	FAR 27-41002-897	621000	ETR	NO	60/C	894437
FAILURE MODE-FAIL DURING OPERATION-GYRO PKG. WAS IR/D WHEN TEST HARNESS FROM THE CANISTER WAS MOMENTARILY CROSS CONNECTED AT THE TEST SET. A LOUD BUZZING NOISE WAS HEARD IN THE CANISTER. FAILURE ANALYSIS REVEALED A BURNED SMD WINDING. CAUSED BY MISAPPLICATION OF VOLTAGE ON THE SMD CIRCUIT.							
CORRECTIVE ACTION-SINCE THE PARTIAL MISMATCHING OF THE TEST SET CONNECTORS WAS ACCIDENTAL, AND THE CONNECTORS ARE MADE IN SUCH A MANNER THAT THE CONNECTORS CANNOT BE INTERCHANGED, NO CORRECTIVE ACTION WAS TAKEN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3485-F RATE GYRO	FAR 27-04374-3	621000	FACTORY	YES	HONEYWELL NO JRBIDIAZ	892791
FAILURE MODE-STRUCTURAL. THE RATE GYRO WAS IR/D WHEN DURING MANUFACTURING IT WAS NOTICED TO HAVE A HIGH MULL OF 193 MV. SPECIFICATIONS CALL FOR NO MORE THAN 25 MV. A TEARDOWN ANALYSIS CONDUCTED ON THE GYRO REVEALED A BADLY DISTORTED QUADRILEVER. IT IS SUSPECTED THAT AT SOME TIME THIS GYRO WAS DROPPED.							
CORRECTIVE ACTION-A STUDY REVEALED THAT GYROB ARE UNPACKED AND ASSEMBLED INTO NEXT ASSEMBLIES ON HARD WORKING SURFACES. A REVISION TO WPS 21.38.5 RECOMMENDING THE USE OF RUBBERIZED TAPE WAS MADE 4 DECEMBER 1962.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3486-F RATE GYRO	FAR 27-04301-1	621000	FACTORY	YES	HONEYWELL NO JRT114	892792
FAILURE MODE-OUT OF SPECIFICATION. THE RATE GYRO WAS IR/D FOR A HIGH MULL OUTPUT VOLTAGE OF 107 MV. SPECIFICATIONS CALL FOR NO MORE THAN 25 MV. GYRO WAS RETURNED TO VENDOR WHERE INITIAL ELECTRICAL TESTS CONFIRMED THE FAILURE. A TEARDOWN ANALYSIS CONDUCTED ON THE GYRO REVEALED NO DISCREPANCIES.							
CORRECTIVE ACTION-VENDOR HAS MADE SWEEPING CHANGES IN MANUFACTURING AND QUALITY CONTROL TECHNIQUES. REF. MINNEAPOLIS-HONEYWELL JRB-1082-1 DATED OCTOBER 1962.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3491-F GYRO-DISPLACEMENT	FAR 27-04250-3	621000	FACTORY	YES	KEARFOTT NO C70-2506-000	892773
FAILURE MODE-FAIL DURING OPERATION. GYROB S/N 4047ABE; 4213ABDE; 4202, 3983ADE, REPORTEDLY FAILED DURING MANUFACTURING TEST WHEN THEY SHOWED SIGNS OF STICKING.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOTEST-SQUARE-A/B GYRO PACKAGE	A-98-04-3580F DISPLACEMENT GYRO MOTOR	FAR 27-41002-895	820928	AAPB	YES	KEARFOY
	FAILURE MODE-STRUCTURAL. A NO-GO WAS REPORTED FROM THE SPIN-MOTOR ROTATION-DETECTOR (SMRD) CIRCUIT. FAILURE CAUSED BY BEARING LUBRICANT DRYING IN THE SPIN-MOTOR BEARING CAUSING EXCESSIVE FRICTION THEREBY SLOWING THE SPIN MOTOR.					
	CORRECTIVE ACTION-A CONTINUING STUDY OF THE SPIN-MOTOR BEARING PROBLEM IS BEING CONDUCTED BY KEARFOY. REF-SPIN NOT OR RELIABILITY PROGRAM PROGRESS REPORT ROR-10-82-1, SEPT. 1 THROUGH SEPT. 30, 1968. THE TESTING OF A NEW TYPE OF LUBRICANT IS UNDER WAY.					
AUTOTEST-SQUARE-A/B GYRO PACKAGE	A-99-04-3538F GYRO-DISPLACEMENT SMRD	FAR 7-04230-3	820928	FACTORY	YES	KEARFOY
	FAILURE MODE-OUT OF TOLERANCE. DURING FACTORY TESTS THE GYRO REPORTEDLY FAILED TO NULL. THE FAILURE WAS NOT CONFIRMED. THE GYRO OPERATED NORMALLY DURING ALL FAILURE ANALYSIS TESTS. A REVIEW OF FACTORY RECORDS FAILED TO INDICATE ANY TEST SET DISCREPANCIES.					
	CORRECTIVE ACTION-UNKNOWN.					
AUTOTEST-SQUARE-A/B GYRO PACKAGE	HC-99-04-3432-F GYRO	FAR 27-41002-897	820928	FACTORY	YES	60/C
	FAILURE MODE-OUT OF TOLERANCE. THE GYRO PACKAGE WAS REPORTED OUT OF TOLERANCE WHEN THE THREE VOLT ROLL SLAVING TEST PRODUCED HIGHER VALUES THAN ALLOWABLE. FAILURE NOT CONFIRMED USING LABORATORY TEST SET, BUT WAS REPEATED WHEN THE ORIGINAL FACTORY TEST SET WAS USED. SUSPECT INSUFFICIENT WARM-UP TIME AND IMPROPER SETTINGS OF 115 VAC 400HZ POWER SUPPLY.					
	CORRECTIVE ACTION-REPORTED FAILURE NOT ISOLATED. NO ACTION TAKEN.					
AUTOTEST-SQUARE-A/B GYRO PACKAGE	HC-99-04-3429-F ROLL RATE GYRO	FAR 27-41002-897	820928	FACTORY	NO	60/C
	FAILURE MODE-OUT OF TOLERANCE. ROLL RATE GYRO REPORTED OUT OF TOLERANCE. THE PROBLEM WAS TRACED TO THE TEST SET.					
	CORRECTIVE ACTION-NONE.					

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AX62-0047/ARI41-0-1-161/FC-CO-01-0 013-003 AMPLIFIER	COMPOSITE-FACTORY	161D 620923	FACTORY	NO	60/C NO	999019
FAILURE MODE-FAIL DURING OPERATION-UNEXPECTED ENGINE TORQUING MOVEMENTS WERE APPARENT DURING PITCH GYRO BIAS FUNCTION DUE TO A FAULTY GSE PITCH GYRO WALLING AMPLIFIER.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE RETEST WAS REQUIRED.							
CORRECTIVE ACTION-THE FAULTY GSE WALLING AMPLIFIER WAS REPLACED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-93-04-3493-F RATE GYRO	FAR 27-04374-3	620924	FACTORY	YES	HONEYWELL NO	992771
FAILURE MODE-FAIL DURING OPERATION. THE RATE GYRO WAS IN/D WHEN IT WAS DISCOVERED THAT IT HAD NO OUTPUT. FAILURE WAS CAUSED BY A POORLY-FITTED SPIN-MOTOR ROTATION-DETECTOR SLUG BECOMING DISLOADED AND CAUSING THE GYROSCOPE TO OPERATE ERRATICALLY.							
CORRECTIVE ACTION-VENDOR TO IMPROVE QUALITY CONTROL PROCEDURES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HC-98-04-3408F ROLL RATE GYRO	FAR 27-41002-897	620922	ETR	YES	NO	997833
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. THE TURNING RATE IN THE REDUNDANT ROLL CHANNEL REQUIRED TO CAUSE AN ABORT, WAS FOUND TO BE MORE THAN 3 PERCENT BELOW NOMINAL. ANALYSIS INDICATED THE R1 GYRO WAS INADVERTENTLY WARRIED TO BOTH THE R1 AND R2 OVERRATE DETECTORS.							
CORRECTIVE ACTION-PROCEDURE 27-919458K1 WAS MODIFIED BY ECN TO CHANGE MARRIAGE PROCEDURE. THE GYRO TEST SET, TEST 30 83, WAS MODIFIED BY CICE2163 TO ADD A LIGHT AROUND THE SPECIAL NUMBER 1 RELAY TO INFORM THE OPERATOR WHEN THE RELAY LATCHES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-90-04-3456-F AMPLIFIER PACKAGE	FAR 27-44334-3	620922	WTR	YES	60/C NO	993834
FAILURE MODE-OUT OF TOLERANCE. GYRO PACKAGE FAILED WHEN RESISTORS R-8 AND R-14, OF THE HEATER CONTROL MAGNETIC AMPLIFIER TC7C-1, CHANGED VALUE DUE TO AGING. THESE RESISTORS ARE THE DEPOSITED CARBON TYPE.							
CORRECTIVE ACTION-60/C RECOMMENDED USE OF METALLIC FILM RESISTORS. VENDOR COMPLIED EFFECTIVE 4 MARCH 1968.							

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-98-04-3408-F	FAR 27-41002-897	820922	ETR	NO	50/C NO	894873
FAILURE MODE-OUT OF TOLERANCE. OUT OF TOLERANCE CONDITION REPORTED IN THE ROLL CHANNEL. FAILURE TRACED TO ERROR IN OPERATION OF THE GYRO TEST SET TET 3083.							
CORRECTIVE ACTION-TET 3083 WAS MODIFIED TO PREVENT RECURRENCE OF ERROR.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-99-04-3409F RATE GYRO	FAR 27-41703-809	113D 820920	FACTORY	YES	MONEYWELL NO	897234
FAILURE MODE-CONTAMINATION. ROLL-1 ABORT VOLTAGE LEVEL VARIED WHEN NO CHANGE IN ABORT VOLTAGE LEVEL WAS MADE. THE FAILURE WAS ATTRIBUTED TO STICKION IN THE RATE GYRO CAUSED BY A SMALL PARTICLE OF SOLDER LIKE MATERIAL WHICH WAS INTRODUCED DURING GYRO MANUFACTURING BY THE VENDOR.							
CORRECTIVE ACTION-THE GYRO VENDOR (MINNEAPOLIS- MONEYWELL) REVISED MANUFACTURING PROCEDURES TO INCLUDE MICROSCOPIC EXAMINATION OF INTERNAL PARTS AND REVISED SOLDERING TECHNIQUES. REFERENCE MONEYWELL REPORT JRS-1062-1, DATED OCTOBER 1, 1962.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-99-04-3410F RATE GYRO	FAR 27-41002-897	113D 820920	FACTORY	NO	NO	897208
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. ROLL-1 ABORT VOLTAGE LEVEL VARIED WHEN NO CHANGE IN THE ABORT VOLTAGE LEVEL WAS MADE. FAILURE ANALYSIS SHOWED FAILURE WAS CAUSED BY REMOTE RATE GYRO UNIT PART NUMBER 87-41703-809.							
CORRECTIVE ACTION-NONE. FAILURE DISCOVERED IN REMOTE RATE GYROSCOPE GROUP. REFERENCE FAR NUMBER H6-99-04-3409 F.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3586F RATE GYRO	FAR 27-04974-3	820920	FACTORY	YES	MINNEAPOLIS-NO MONEYWELL JRS101A2	896030
FAILURE MODE-OUT OF TOLERANCE. DURING TOP PACKAGE TESTS, THE RATE GYROSCOPE EXHIBITED A HIGH MALL OUTPUT VOLTAGE. THE FAILURE INDICATION WAS PROBABLY THE RESULT OF A TEST SET MALFUNCTION.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	MC-99-04-3409F REMOTE RATE GYRO	FAR 27-41703-809	320920		YES NO	YES 60/C NO	992120
FAILURE MODE-OUT OF EXPECTED TEST VALUE. DURING THE MARRIAGE TEST WHEN MATCHING GYROSCOPE CANISTER REMOTE RATE GYRO P AND THE ABORT SENSING CONTROL. OUT OF EXPECTED TEST VALUES WERE NOTED DUE TO STRICTURE IN THE RATE GYROSCOPE AND E RRATIC OPERATION OF THE ABORT LEVEL ADJUSTING TRIMPOT.							
CORRECTIVE ACTION-VENDOR INITIATED IMPROVED INSPECTION PROCEDURES TO INCLUDE MICROSCOPIC EXAMINATION OF INTERNAL PARTS AND IMPROVED SOLDERING TECHNIQUES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3373F RATE GYRO	YAR 27-04374-3	620919	FACTORY	YES NO	MINNEAPOLIS-HO NO KEYWELL JRS101AE	996038
FAILURE MODE-ELECTRICAL OPEN. THE RATE GYRO EXHIBITED HIGH MALL OUTPUT VOLTAGE DURING NEXT ASSEMBLY FACTORY TESTS. THE CAUSE OF THE FAILURE WAS A BROKEN EPOXY BOND HOLDING THE SIGNAL GENERATOR TO THE SIGNAL GENERATOR CAP.							
CORRECTIVE ACTION-BAR A-99-04-3623 WAS WRITTEN REQUESTING THE VENDOR TO IMPROVE HIS BONDING TECHNIQUE AND INSPECTIO N AND TO INCORPORATE A TEMPERATURE CYCLE AND PULL TEST TO ELIMINATE FAILURES OF THIS TYPE, INCORPORATE A PULL TEST E QUIVALENT TO A LOAD OF 101 G3 TO ASSURE ADEQUACY OF THE BOND. A LIGHT SANDBLAST OPERATION WAS ADDED TO THE CONTACT S URFACE OF THE ENO-CAP BEFORE CEMENTING.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	MC-99-04-3399F AMPLIFIER CALIBRATION RESISTOR	FAR 27-41002-897	113D 620919	FACTORY	YES NO	YES 60/C NO	993100
FAILURE MODE-OUT OF TOLERANCE. THE GYRO CANISTER WAS IR/D FOR TOO HIGH YAW SIGNAL GAIN. CALIBRATION RESISTOR WAS OF THE WRONG VALUE. RESISTOR WAS CHANGED FROM 4.731 K-OHMS TO 24.9 K-OHMS AND THE GAINS WERE WITH IN TOLERANCE. UNIT W AS BOLD OFF WITH THE WRONG GAIN.							
CORRECTIVE ACTION-FACTORY SUPERVISION AND CHECKOUT PERSONNEL WERE ADVISED OF THIS FAILURE ANALYSIS AND ARE TAKING S TEPS TO PRECLUDE THIS TYPE OF FAILURE RECURRING.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	MC-99-04-3400F DISPLACEMENT GYRO	FAR 27-41002-897	113D 620919	ETR	YES NO	YES 60/C NO	
FAILURE MODE-STRUCTURAL. NO-GO INDICATION RECEIVED FROM SPIN MOTOR ROTATION DETECTOR (19MRD) NETWORK. ANALYSIS REVEA LED DISTORTED FLEX LEADS FOR PHASE A AND B AND BROKEN PHASE C FLEX LEAD.							
CORRECTIVE ACTION-REVISED HANDLING PROCEDURES TO INCLUDE WARNUP, COOLDOWN, AND HANDLING REQUIREMENTS INCLUDED IN ME							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTM	VENDOR NAME VENDOR PART NO	
	NO 358-2-5043 DATED MARCH 20 1963. BAFFLES INCORPORATED IN GYROS NEAR FLEX LEADS TO PRECLUDE FAILURES FROM FLOW OF F LOTATION MATERIAL. PART NUMBER CHANGED FROM 7-04830-3 TO 7-04830-803 TO DOCUMENT THE CHANGE.						997783
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3347F RATE GYRO SHRD	FAR 27-43045-3	620918	FACTORY	YES NO		995900
	FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE-THE TWO-RATE GYROSCOPE PACKAGE SUMMING NETWORK DID NOT HAVE ENOUGH O UTPUT TO GIVE A GYROSCOPE SELF-CHECK 60-SIGNAL. FAILURE DUE TO A DEMAGNETIZE SPIN-MOTOR ROTATION-DETECTOR MAGNET.						
	CORRECTIVE ACTION-A THOROUGH STUDY OF THIS TYPE OF FAILURE. RESULTS OF THIS STUDY ARE PRESENTED IN REPORT REL-62-64 -063 DATED JULY 18, 1962. RELIABILITY ENGINEERS ARE ENGAGED WITH COGNIZANT DESIGN ENGINEERS IN AN ATTEMPT TO EFFECT A CIRCUIT CHANGE TO PREVENT DAMAGE TO THE SPIN-MOTOR-ROTATION-DETECTOR IF VOLTAGE IS INADVERTENTLY APPLIED TO THE CIR CUIT.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HE-98-04-3400-F DISPLACEMENT GYRO	FAR 27-41002-897	113D	ETR	YES NO	YES 60/C NO	995741
	FAILURE MODE-OPEN (ELECTRICAL). A NO-60 INDICATION WAS RECEIVED FROM THE SPIN MOTOR ROTATION DETECTOR DUE TO AN OPE N IN THE PHASE C FLEAD OF THE PITCH DISPLACEMENT GYRO.						
	CORRECTIVE ACTION-60/C INCORPORATED NEW HANDLING REQUIREMENTS AND BAFFLES WERE INCORPORATED IN THE GYRO NEAR THE FL EX LEADS TO PREVENT FLOW OF THE HEAVY FLONTATION MATERIAL DURING COOLDOWN.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9N-04-4070F RATE GYRO	FAR 27-41002-855	52F	AAFB	NO NO		996368
	FAILURE MODE-FAIL DURING OPERATION. NO-60S WERE RECEIVED ON MARCHE CARDS 210, 212, 213, AND 221. ANALYSIS REVEALED THAT THESE CARDS ARE MARCHE SELF-CHECK OPERATIONS THAT DO NOT CONCERN THE CANISTER.						
	CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9N-04-3680-F AMPLIFIER RESISTORS	FAR 27-41002-833	620917	ALTUS	YES NO	YES 60/C NO	995833
	FAILURE MODE-OUT OF TOLERANCE. GYRO PACKAGE FAILED WHEN RESISTORS R-8 AND R-14, OF THE HEATER CONTROL MAGNETIC AMPL IFTER TCFC-1, CHANGED VALUE DUE TO AGING. THESE ARE DEPOSITED CARBON TYPE RESISTORS.						
	CORRECTIVE ACTION-60/C RECOMMENDED USE OF METALLIC FILM RESISTORS. VENDOR COMPLIED EFFECTIVE 4 MARCH 1963.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3480-F RATE GYRO SPIN MOTOR	FAR 27-04574-1	820917	FACTORY	YES	MOKEYWELL NO	094204
FAILURE MODE-CONTAMINATION. THE RATE GYRO WAS REJECTED IN THE ELECTRONICS LAB. WHEN IT WAS NOTICED THAT PHASE C OF THE SPIN-MOTOR WAS SHORT-CIRCUITED TO GROUND. WHEN GYRO WAS DISASSEMBLED SEVERAL SOLDER BALLS WERE FOUND. THIS IS AN OLD PROBLEM WITH THE JR3101 GYROS.							
CORRECTIVE ACTION-THE VENDOR CORRECTED THIS BY REPLACING THE JR3101 GYRO WITH AN UNSOLDERED CASE GYRO JR3101A2.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3583F RATE GYRO	FAR 27-04574-3	820914	FACTORY	YES	MINNEAPOLIS-MO NO KEYWELL JR3101A2	096038
FAILURE MODE-ELECTRICAL OPEN. DURING MANUFACTURING TESTS. THE GYROSCOPE EXHIBITED A HIGH NULL OUTPUT VOLTAGE. FAILURE WAS DUE TO A BROKEN SIGNAL GENERATOR EPOXY BOND.							
CORRECTIVE ACTION-PER FAR A-99-04-3623 THE VENDOR HAS ADDED A PULL TEST EQUIVALENT TO A LOAD OF 1016S TO INSURE THAT THE CEMENT BOND IS OF SUFFICIENT STRENGTH. A LIGHT SANDBLAST OPERATION WAS ADDED TO THE CONTACT SURFACE OF THE STA INLESS STEEL ENDCAP BEFORE CEMENTING TO INCREASE THE STRENGTH OF THE BOND.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3572F RATE GYRO	FAR 27-04574-3	820913	FACTORY	YES	MINNEAPOLIS MO NO KEYWELL JR3101A2	096037
FAILURE MODE-OUT OF TOLERANCE. THE RATE GYRO EXHIBITED A HIGH NULL OUTPUT VOLTAGE. THE FAILURE INDICATION WAS MOST PROBABLY THE RESULT OF A MALFUNCTION OF THE TEST EQUIPMENT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4215F SAND/TRANSISTOR	FAR 27-41002-835	820913	ALTUS	YES	50/C NO	092746
FAILURE MODE-OUT OF TOLERANCE. SAND OUTPUT WAS LOW. ONE CAPACITOR FROM SHILLING AND ONE FROM WALKER WERE REJECTED 7 OR THE SAME REASON ALL THREE FAILURES WERE DUE TO HIGH LEAKAGE IN 2N736 TRANSISTOR IN SAND SCHNIDT TRIGGER CIRCUIT.							
CORRECTIVE ACTION-CAUSE OF HIGH LEAKAGE WAS NOT DETERMINED. NO CORRECTIVE ACTION TAKEN.							

GENERAL L. J. JENCKS
CONVAIR DIVISION

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3507-F DISPLACEMENT GYRO TRANSISTOR	FAR 27-41002-893	620912	AAPB	YES	60/C NO	097E13
FAILURE MODE-OUT OF TOLERANCE. YAW GYRO WOULD NOT HOLD DURING A/P SYSTEMS TEST. ATTRIBUTED TO THERMAL RUNAWAY OF TR ANSISTOR EN339 IN TORQUE AMP. DUE TO MARGINAL CIRCUIT DESIGN. SEE ALSO FAR A-98-04-3508F.							
CORRECTIVE ACTION-TORQUE AMP REDESIGNED USING 2N498 TRANSISTORS AND IMPROVED HEAT SINKS. FAR 98-04-674.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-98-04-3507F ROLL DISPLACEMENT GYRO WIRE	FAR 27-41002-893	620912	ETR	YES NO		098041
FAILURE MODE-STRUCTURAL. THE ROLL CHANNEL DRIFT WAS OUT OF TOLERANCE. THE FAILURE WAS CONFIRMED AND WAS CAUSED BY A SHIFT IN FIXED RESTRAINTS DUE TO FLEXLEAD DISTORTION IN THE ROLL DISPLACEMENT GYRO.							
CORRECTIVE ACTION-60/C INCORPORATED NEW HANDLING REQUIREMENTS INTO APPLICABLE PROCEDURES. (REF-MEMO 956-2-5063 DATE D MARCH 20, 1963) BAFFLES ARE BEING INSERTED INTO GYROS NEAR FLEXLEADS TO PRECLUDE FLEXLEAD BREAKAGE OR DISTORTION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3531F DISPLACEMENT GYRO MOTOR	FAR 7-04250-3	620911	FACTORY	YES	KEARFOOT NO C70-2506-000	099902
FAILURE MODE-STRUCTURAL. THE REPORTED FAILURE WAS A NOISY BEARING AT 31-2 OPERATIONAL HOURS. DURING FAILURE ANALYSIS S TESTING REVEALED THAT THE GYROSCOPE SPIN MOTOR WAS SATISFACTORY. IT WAS ALSO NOTED THAT THE NOISE LEVEL WAS NOT AS NORMAL.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. NO CORRECTIVE ACTION. FACTORY PERSONNEL WERE INFORMED THAT THERE IS NO CR1 TERIA FOR REJECTION OF GYROS BASED ON NOISE ALONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3479-F EXCITATION TRANSFORMER WIRING	FAR 27-04388-3	620910	FACTORY	YES	TRANSONIC NO	094194
FAILURE MODE-OUT OF TOLERANCE. BOOSTER AND SUSTAINER ENGINE MOVEMENTS WERE OUT OF TOLERANCE. IRREGULARITY TRACED TO THE EXCITATION TRANSFORMER. THE CAUSE OF FAILURE OF THE TRANSFORMER WAS INCORRECT WIRING. LEADS TO PINS D AND Y WERE INTERCHANGED.							
CORRECTIVE ACTION-RECEIVING INSPECTION TEST PROCEDURES REVISED TO MORE CLEARLY DEFINE THE TEST REQUIRED FOR INSPECT ION.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-AS-04-3383-F GYRO HEATER SENSOR RING	FAR 27-44334-3	181-D 820910	FACTORY	YES NO		893417
FAILURE MODE-SHORT. GYRO PMS. WAS REJECTED FOR TOO HIGH TORQUING GAINS. TROUBLE TRACED TO THE PITCH GYRO FINE HEATER SENSOR WINDINGS WHICH WAS SHORTED TO GROUND. THE RESISTANCE WINDING HAD A BARE SPOT IN THE INSULATION. A FAULTY LOT OF RESISTANCE WIRE HAD BEEN RECEIVED IN SPRING OF 1962. THIS STOCK WAS PURGED OUT OF EXISTING STOCK.							
CORRECTIVE ACTION-SINCE THIS IS THE ONLY FAILURE OF THIS TYPE SINCE PURGING THE STOCK NO FURTHER CORRECTIVE ACTION WAS TAKEN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	CT-99-04-038F DISPLACEMENT GYRO-WIRING	FAR 7-04250-3	820906	FACTORY	YES NO		892967
FAILURE MODE-OPEN. ELECTRICAL. UNIT REJECTED FOR INSUFFICIENT SARD OUTPUT. FAILURE ATTRIBUTED TO A BROKEN PHASE B LEAD. THE BREAK OCCURRED AT THE POINT WHERE THE INSULATION HAD BEEN STRIPPED FROM THE WIRE.							
CORRECTIVE ACTION-CONTACT WITH REARFOOT REVEALED MECHANICAL WIRE STRIPPERS WERE DISCONTINUED IN OCTOBER 1962 AND REPLACED WITH THERMAL STRIPPERS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3327F GYRO-DI: PLACEMENT	FAR 7-04250-3	820904	FACTORY	YES NO	YES REARFOOT NO CTG-2506-000	892813
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE-THE RESISTANCE BETWEEN PINS 1 AND 2 WAS ONLY 20 OHM WHEN IT SHOULD HAVE BEEN APPROXIMATELY 150 OHMS. THE FAILURE WAS NOT CONTRIBUTED. THE GYROSCOPE WAS REJECTED ENORMOUSLY. IT IS POSSIBLE THAT THE SARD WINDING RESISTANCE WAS MISTAKEN FOR THE SPIN-MOTOR WINDING RESISTANCE.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3481-F RATE GYRO SIGNAL GENERATOR	FAR 27-41002-933	820903	DAFB	YES NO		894203
FAILURE MODE-ELECTRICAL OPEN. THE GYRO PACKAGE WAS IN/D WHEN THE ROLL RATE GYRO COULD NOT BE TORQUED. THE FAILURE WAS TRACED TO AN OPEN CIRCUIT SECONDARY WINDING OF THE SIGNAL GENERATOR. THE OPEN CIRCUIT WAS CAUSED BY EXCESS EPOXY BONDING MATERIAL WHICH WHEN CURED PULLED BACK AND TENSED THE WINDING AND CAUSED IT TO OPEN.							
CORRECTIVE ACTION-VENDOR INSTITUTED 100-PERCENT INSPECTION OF THE SIGNAL GENERATOR ASSEMBLY, CONCENTRATING ON CONTACT AND LOOSE WIRES.							

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COMVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-80-04-3480-F RATE GYRO	FAR 27-41703-809	820831	WTR	YES NO	YES 60/C	893837
FAILURE MODE-OUT OF TOLERANCE. THE REMOTE RATE GYRO PACKAGE WAS REJECTED DURING APCHE AUTOPILOT SYSTEM CHECKOUT WHE N THE YAW-RATE GYRO OUTPUT REMAINED AT MAXIMUM POSITIVE AND COULD NOT BE LOWERED. SUSPECT TEST EQUIPMENT MALFUNCTION							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED DURING 60/C FUNCTIONAL TESTS AND VENDOR TEARDOWN INSPECTION. BASE PERSONNEL WERE INFORMED OF THESE RESULTS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-80-04-3351F RATE GYRO	FAR 27-41703-809	1480 820831	FACTORY	YES NO		894730
FAILURE MODE-OUT OF TOLERANCE. THE REMOTE THREE-RATE GYRO GROUP WAS REPORTED FAILED DUE TO NO OUTPUT FROM THE YAW R ATE GYRO SPIN-MOTOR ROTATION DETECTOR (8MRD) CIRCUIT. THIS FAILURE WAS FOUND TO BE CAUSED BY A PARTIALLY DEMAGNETIZE D 8MRD MAGNET.							
CORRECTIVE ACTION-NONE. EXACT CAUSE OF THIS TYPE OF FAILURE COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3342F RATE GYRO	FAR 27-45045-5	820831	DYES	NO NO		894709
FAILURE MODE-FAIL DURING OPERATION. THE TWO-RATE GYROSCOPE PACKAGE GAVE A FAILED INDICATION DURING TANKING OPERATIO NS. IT WAS DETERMINED THAT THE -S CONFIGURATION PACKAGE HAD BEEN USE INSTEAD OF THE -803 CONFIGURATION PER ECP1887. PREVIOUS FAILURES HAVE INDICATED THAT THE OVERLAPPING TOLERANCES USED IN THE -S CONFIGURATION COULD RESULT IN AN AUT OPILOT FAIL INDICATION DURING TANKING.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	/P4-4C0-01-113 GYRO	COMPOSITE-B FACT 27-41002-887	113D 820829	ETR	YES NO		897883
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. AN ABNORMAL ROLL DISPLACEMENT GYRO DRIFT WAS OBSERVED DURING THE CO MBINED GYRO-DECODE DRIFT TEST. OPERATION WAS SATISFACTORY DURING THE NORMAL DRIFT TEST.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-UNKNOWN. (FAR 98-04-3846).							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3459-F AMPLIFIER RESISTOR	FAR 27-41002-855	620822	WALKER	YES NO	60/C	995838
FAILURE MODE-OUT OF TOLERANCE. GYRO PACKAGE FAILED WHEN RESISTOR R-8, OF THE HEATER CONTROL MAGNETIC AMPLIFIER TC7C -1, CHANGED VALUE DUE TO AGING. THIS IS A DEPOSITED CARBON TYPE RESISTOR.							
CORRECTIVE ACTION-60/C RECOMMENDED USE OF METALLIC FILM RESISTORS. VENDOR COMPLIED, EFFECTIVE 4 MARCH 1965.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3508F DISPLACEMENT GYRO TRANSISTOR	F/R 27-41002-855	620822	AAFB	YES NO		997212
FAILURE MODE-OUT OF TOLERANCE. TORQUING GAIN OF PITCH DISPL. GYRO CAUSED NO-GC READING. CAUSED BY THERMAL RUNAWAY O P TRANSISTOR 2N339 AND BURNING OF RESISTOR RED (EMITTER RESISTOR) DUE TO MARGINAL CIRCUIT DESIGN. SEE ALSO RAR 3507- F.							
CORRECTIVE ACTION-TORQUER AMP. REDESIGNED USING 2N494 TRANSISTORS AND IMPROVED HEAT SINKS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3570F GYRO-SMRD	FAR 27-41002-855	620822	PAFB	NO NO		995833
FAILURE MODE-OUT OF TOLERANCE-DURING A MARCHE CHECKOUT, A SPIN-MOTOR ROTATION-DETECTOR (SMRD) NO-60 WAS RECEIVED. T HE FAILURE INDICATION WAS CAUSED BY A MARCHE MALFUNCTION. THE MARCHE CARD THAT GAVE THE NO-60 WAS CARD 304 OF DECK 2 7-98451-903. THIS CARD CHECKS GYRO SPEED LOW TRANSITION BUT 3. A NO-60 READING ON THIS CARD INDICATES A MARCHE MALFU NCTION.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3454-F RATE GYRO	FAR 27-04374-3	620822	FACTORY	YES NO	MINNEAPOLIS-MO NETWELL JRS-101AR	995839
FAILURE MODE-OUT OF TOLERANCE. UNIT WAS REPORTED OUT OF TOLERANCE WHEN NULL OUTPUT WAS TOO HIGH.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED IN TESTS PERFORMED BY 60/C AND THE VENDOR.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM--IRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	DATE DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3533F GYRO-RATE	FAR 27-04374-3	820821	FACTORY	NO	MINNEAPOLIS-HO KEYWELL JMS101A2	894737
FAILURE MODE-SHORT (ELECT)-DURING BENCH TESTING THE GYRO WAS REPORTED TO BE SHORT-CIRCUITED INTERNALLY. THE FAILURE WAS NOT CONFIRMED. COMPLETE EXAMINATION INDICATED THAT THERE WAS NO FAILURE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-3343F RATE GYRO	FAR 927-41703-809	1130	ETR	NO		894737
FAILURE MODE-OUT OF TOLERANCE. THE REMOTE THREE-RATE GYRO PACKAGE WAS RETURNED AS PART OF A SYSTEM WITH A REPORTED FAILURE OF AN ABORT-SENSING CONTROL UNIT. (IR 738708) NO FAILURE OF GYRO CANISTER FOUND. UNIT IS SATISFACTORY FOR SERVICE.							
CORRECTIVE ACTION-NONE-NO FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-3344F DISPLACEMENT GYRO	FAR 27-41002-897	1130	FACTORY	NO		894738
FAILURE MODE-OUT OF TOLERANCE. THE GYRO PACKAGE WAS RETURNED AS PART OF A SYSTEM WITH A REPORTED FAILURE OF AN ABORT-SENSING CONTROL UNIT. (IR 070319) TESTS SHOWED THE GYRO PACKAGE WAS NOT DAMAGED BY THE ABORT-SENSING CONTROL UNIT FAILURE.							
CORRECTIVE ACTION-NONE-NO FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4252F RATE GYRO	FAR 27-43045-803	72F	DAFB	YES	GO/C NO	893439
FAILURE MODE-STRUCTURAL. TWO RATE GROUP FAILED PITCH TORQUING GAIN IN MINUS PHASE. FAILURE WAS ATTRIBUTED TO HIGH M ULL IN PITCH RATE GYRO CAUSED BY BENT QUADRILEVERS. THE CAUSE OF THE BENT QUADRILEVERS WAS NOT LEARNED.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE WAS NOT LEARNED.							

GENERAL, MICHAEL J. DAVIS

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4299C GYRO, DISPLACEMENT	FAR 7-04290-3	820819	FACTORY	YES NO	YES REARPORT NO C702503
FAILURE MODE-DRIPT. GYRO WAS REJECTED FOR DRIPT. THE GYRO WAS NOT SUBMITTED FOR FAILURE ANALYSIS.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4299C GYRO, DISPLACEMENT/SARD	FAR 7-04290-3	820819	FACTORY	YES NO	YES REARPORT NO C702504000
FAILURE MODE-OUT OF TOLERANCE. THE GYRO HAD NO SARD OUTPUT. THE GYRO WAS NOT SUBMITTED FOR FAILURE ANALYSIS.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3512F RATE GYRO	FAR 27-43043-805	92F 820813	FACTORY	YES NO	
FAILURE MODE-ERRATIC OPERATION. DURING MARCHE CHECKOUT, NO OUTPUT FROM YAW RATE GYRO. FAILURE CONFIRMED. CAUSE OF FAILURE NOT RESOLVED. INTERMITTENT IN NATURE.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3534F GYRO-RATE/SARD	FAR 27-04374-3	820813-6 80919	FACTORY	YES NO	YES MINNEAPOLIS-MO NO METWELL JRS 101A2
FAILURE MODE-OUT OF TOLERANCE. FOUR RATE GYROS FAILED. IN EACH CASE THERE WAS EITHER INSUFFICIENT OR NO SPIN-MOTOR ROTATION DETECTOR (SARD) OUTPUT. THE REPORTED FAILURES WERE CONFIRMED AND ARE ATTRIBUTED TO MISAPPLICATION OF VOLTAGE TO THE SARD WINDINGS WHICH CAUSED THE WINDINGS TO BE BURNED OPEN (S/Ns 1089, 923 AND 801) OR DEMAGNETIZED THE MAGNET (S/N 101071) RESULTING IN THE OUT-OF-TOLERANCE SARD OUTPUT.						
CORRECTIVE ACTION-TUX 804-80F 107-116 DATED JULY 29, 1962 WAS SENT TO ALL SITES AND TO FACTORY PERSONNEL ADVISING OF DAMAGE DUE TO INADVERTENT VOLTAGE APPLICATION TO SARD CIRCUITRY.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A682-0731/08-801-00-87 HARNES	FLIGHT	57F 820810	WTR 3-5	YES NO		894030
<p>FAILURE MODE-OPEN CIRCUIT (ELECT)-A CIRCUIT DISCONTINUITY DOWNSTREAM OF THE ARMA GUIDANCE SYSTEM PREVENTED TRANSMISSION OF A ROLL STEERING SIGNAL AFTER LIFTOFF. DIFFICULTY NOT ISOLATED BUT MOST PROBABLY OCCURRED IN ROLL GYRO TORQUE R AMPLIFIER, ROLL DISPLACEMENT GYRO OR TORQUE EXCITATION WIRING.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL-ROLL GYRO SIGNAL AMPLIFIER RECEIVED VERY LOW LEVEL ROLL SIGNAL (AS EVIDENCED BY ROLL RATE GYRO DATA OF 0.07 DEG/SEC AGAINST 10 DEG/SEC MAXIMUM EXPECTED) RESULTING IN FAILURE OF SYSTEM TO ROLL THE VEHICLE TO THE CORRECT AZIMUTH.</p> <p>VEHICLE EFFECT-IMPROPER TRAJECTORY-FAILURE TO COMPLETE ROLL PROGRAMS REQUIRED RESULTED IN TRAJECTORY APPROXIMATELY 55 DEGREES TO RIGHT OF SPECIFIED. VEHICLE WAS DESTROYED BY RANGE SAFETY COMMAND AT 87.83 SECONDS.</p> <p>CORRECTIVE ACTION-NONE.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9L-04-3461-F YAW GYRO RESISTORS	FAR 27-41002-833	101F 820809	LAFB	YES NO		894436
<p>FAILURE MODE-OUT OF TOLERANCE. THE YAW GYRO HEATER VOLTAGE OSCILLATED BETWEEN 0 AND 80 VDC. AFTER 45 MIN THE OSCILLATIONS DECREASED IN RANGE TO BETWEEN 30 AND 60 VDC. THE FEEDBACK RESISTORS R-4 AND R-14 IN THE MAGNET AMPLIFIER HAD CHANGED DOWNWARD IN VALUE ALLOWING THE AMPLIFIER TO OSCILLATE. CAUSE OF THE FAILURE WAS AGING OF THE DEPOSITED CARBON RESISTORS.</p> <p>CORRECTIVE ACTION-EFFECTIVE 4 MARCH 1963 ALL CARBON DEPOSITED RESISTORS ARE REPLACED WITH METALLIC FILM RESISTORS.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9L-04-3478-F ROLL TORQUE TRANSFORMER	FAR 27-41002-835	33F 820807	LAFB	YES NO	YES NO	894191
<p>FAILURE MODE-OUT OF TOLERANCE. THE GYRO PKG. WAS IR/D FOR LOW ROLL TORQUE GAIN. FAULT WAS TRACED TO TRANSFORMER T-2 (P/NET-04179) WHICH HAD A POOR SOLDER JOINT ON PINS 1 AND 2.</p> <p>CORRECTIVE ACTION-VENDOR REQUESTED TO IMPROVE QUALITY CONTROL.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-3308F RATE GYRO SHRD	FAR 27-41703-809	820804	FACTORY	NO NO	NO NO	
<p>FAILURE MODE-OPEN (ELECT). TWO RATE GYRO CANISTERS WERE DAMAGED DURING VIBRATION TESTING WHEN PLUS 14 AND POS 16 WERE REVERSED. ONLY THE COARSE AND FINE HEATER VOLTAGES WERE APPLIED. THE PITCH RATE SHRD CIRCUITS WERE FOUND OPEN IN BOTH CANISTERS. NO OTHER MALFUNCTIONS WERE DETECTED.</p>							

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-80/C ISSUED MAP 3864, CIC 82185, COVERING COLOR CODING OF CABLES TO PREVENT THIS TYPE OF FAILURE.							897376
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-89-04-3303F DISPLACEMENT GYRO	FAR 27-41002-897	620803	FACTORY	YES NO		897343
FAILURE MODE-OUT OF TOLERANCE. YAW DISPLACEMENT AVERAGE SENSITIVITY WAS HIGH. FAILURE REPEATED ONLY PRIOR TO ADEQUATE CANISTER WARMUP. AN INTOLERANCE CONDITION WAS OBTAINED WHILE ALLOWING CANISTER TO WARMUP AND STABILIZE.							
CORRECTIVE ACTION-NEW PROCEDURES WERE SPECIFIED FOR GYROSCOPE WARMUP, HANDLING, SHUTDOWN, AND SEQUENCE OF OPERATION. (REFERENCE MEMO 556-2-5063 DATED 630380). PROCEDURES USED IN FACTORY AND AT MISSILE BASES CHANGED TO REFLECT THESE REQUIREMENTS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-90-04-3382F -RATE GYRO-THERMOSTAT	FAR 27-45043-803	620803	WTR	YES NO		894672
FAILURE MODE-OPEN-THE REMOTE TWO-RATE GYRO UNIT WAS REJECTED DURING A WAPCHE RUN FOR AN OPEN FROM PINS 2 TO 7 OF PLUG J1. FAILURE WAS CONFIRMED AND TRACED TO A NORMALLY OPEN LOW TEMP. THERMOSTAT INSTALLED IN PLACE OF AN NORMALLY CLOSED HIGH TEMPERATURE UNIT.							
CORRECTIVE ACTION-8-C HAS BEEN IMPROVED BY REV. TO EOP 330-394 PARA 3.1.1.1 TO INCLUDE A THERMOSTAT CHECK. REF. RAR A-90-04-728.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3467-F TRANSFORMER	FAR 27-04180-3	620731	FACTORY	YES NO		894433
FAILURE MODE-ELECTRICAL SHORT. THE TRANSFORMER REPORTEDLY FAILED BY BURNING OUT WHILE MOUNTED ON CIRCUIT BOARD (P/N 27-41376-803). THE TRANSFORMER FAILURE WAS DUE TO PRIMARY WINDINGS THAT BECAME SHORT-CIRCUITED WHEN SUBJECTED TO EXCESSIVE VOLTAGES. SINCE TRANSFORMER WAS SUBMITTED FOR ANALYSIS WITH OUT THE ASSOCIATED CIRCUIT BOARD THE CAUSE OF FAILURE COULD NOT BE DETERMINED. FAR A-99-04-3468-F IS WRITTEN ON AN IDENTICAL FAILURE.							
CORRECTIVE ACTION-FACTORY PERSONNEL INFORMED OF THESE FAILURE ANALYSES. NO OTHER ACTION TAKEN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3433-F DISPLACEMENT GYRO	FAR 27-41002-895	620731	ETR	YES NO		
FAILURE MODE-OUT OF TOLERANCE. PITCH PROGRAM SLAVING REPORTED OUT OF TOLERANCE. THE GYROSCOPE CANISTER WAS CALIBRATED LOW AND WOULD SHOW OUT OF TOLERANCE IF WARM UP TIME WAS TOO SHORT.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. ETR PERSONNEL WERE INFORMED OF THE ANALYSIS AND REQUESTED TO ADHERE TO SPECIFIED WARMUP INSTRUCTIONS.							894146
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9L-04-3377F RATE GYRO	FAR 27-43043-3	49F 820730	LINCOLN	YES NO		894704
FAILURE MODE-OUT OF SPECIFICATION. DURING RUN OF PROCEDURE 27-41074 AN INCORRECT ALARM THERMOSTAT SETTING WAS SUSPECTED. THE REMOTE GROUP WAS TESTED TO DETERMINE THE OPERATING TEMPERATURE OF THE ALARM THERMOSTAT. IT WORKED AT 30 DE G F. SPEC IS 30 PLUS OR MINUS 3 DEG F. FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.							894272
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	3P-99-04-3423-F POWER SUPPLY	FAR 27-41330-809	215D 820730	FACTORY	YES 60/C NO		
FAILURE MODE-SHORT (ELECT). REPORTED FAILED WHEN THE 115 VAC 400 CYCLE SUPPLY VOLTAGE WAS SHORTED.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							891010
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3279C BARD	FAR 27-43363-1	820730	FACTORY	YES 60/C NO		
FAILURE MODE-OUT OF TOLERANCE. FAILED SUBASSEMBLY TEST. OUTPUT WAS 15VDC SHOULD BE NOT LESS THAN 20 VDC. CALIBRATION IN RESISTORS WERE MISSING.							
CORRECTIVE ACTION-NONE.							893861
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	3P-99-04-3290F GYRO-BARD	FAR 27-41002-809	820727	ETR	YES 60/C NO		
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. GYRO PACKAGE WAS REJECTED WHEN BARD LIGHT DID NOT COME ON UNTIL TEN MINUTES AFTER APPLICATION OF MISSILE POWER. BARD MODULE WAS FOUND TO BE HEAT SENSITIVE DUE TO DEFECTIVE WELD.							
CORRECTIVE ACTION-NONE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3428-F ROLL DISPLACEMENT GYRO	FAR 27-41002-899	42F 920726	ALTUS	YES NO		894142
FAILURE MODE-OUT OF TOLERANCE. ROLL DISPLACEMENT GYRO OUTPUT REPORTED LOW.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-49-04-3278F	FAR 27-41002-899	920726	FACTORY	NO NO		891028
FAILURE MODE-ELECTRICAL SHORT. GYRO CAN WAS REJECTED FROM DOCK 12 WHEN BLOWN FUSES INDICATED SHORTED SPINMOTOR. FAILURE WAS NOT CONFIRMED. WIRING ERROR WAS FOUND IN POWER TRAILER USED TO TEST AUTOPILOT COMPONENTS AT DOCK 12.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE INSTRUCTED TO CHECK POWER TRAILER WIRING PRIOR TO TESTING MISSILE SYSTEMS. ALL THREE PHASE TRANSFORMERS IN THE GYRO CAN WERE REPLACED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3346F AMPLIFIER-TRANSISTOR	FAR 27-41566-907	920725	FACTORY	YES NO		894734
FAILURE MODE-OUT OF TOLERANCE. THE TORQUE AMPLIFIER WAS OUT OF SPEC. AT 2 VOLTS AND 8 VOLTS WHEN IT WAS CALIBRATED AT 6 VOLTS. THE FAILURE WAS FOUND TO BE CAUSED BY A MISMATCH OF TRANSISTORS 96 AND 97. SPECIFICATION CALLS FOR THREE TRANSISTORS TO BE MATCHED.							
CORRECTIVE ACTION-PERSONNEL RE-INSTRUCTED IN SELECTION PROCEDURES. FOR MATCHED TRANSISTORS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3332F CIRCUIT BOARD	FAR 27-43183-3	920725	FACTORY	NO NO		894712
FAILURE MODE-OUT OF TOLERANCE. DURING BENCH TESTING, TWO SPIN MOTOR ROTATION DETECTOR (IMRD) NETWORK SUB-ASSEMBLIES EXHIBITED A DISTORTED OUTPUT WAVE FORM AND FREQUENCY OF ONE WAS OUT OF SPECIFICATION. THE FAILURE WAS NOT CONFIRMED. THE FAILURE INDICATION RESULTED FROM EXCESSIVE RIPPLE ON THE FACTORY 28 VOLT DC POWER SUPPLY. THE RIPPLE CAUSED THE OUTPUT OF THE SUBASSEMBLIES TO BE DISTORTED.							
CORRECTIVE ACTION-THE DEFECTIVE FACTORY 28 VDC POWER SUPPLY WAS REPLACED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME OF DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-8L-04-3389F RATE-GYRO	FAR 27-45045-5	47F 820723	LINCOLN	YES NO		892736
FAILURE MODE-OUT OF TOLERANCE. THE REMOTE TWO- RATE GYRO GROUP WAS IN/D FOR TEMPERATURE OUT OF SPEC. REPORTED FAILURE WAS UNCONFIRMED. THIS TYPE OF FAILURE IS DISCUSSED IN FAR A-88-04-3147F WRITTEN ON DATE 820412. SEE ALSO ECP 1467							
CORRECTIVE ACTION-NONE. CORRECTIVE ACTION TAKEN. REF. FAR-A-88-04-3147F.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-86-04-3389F RATE GYRO	FAR 27-45045-5	79F 820724	BYCAMORE	NO YES	60/C	898084
FAILURE MODE-OUT OF TOLERANCE. THE REMOTE RATE GYRO GROUP WAS REPORTED AS HAVING EXCESSIVE ELAPSED TIME BETWEEN APPLICATION OF POWER AND THE GO INDICATION FROM THE 3MRD. FAILURE NOT CONFIRMED. TROUBLE WAS IN MAIN GYRO CANISTER. REF 1R484177, PPAR 9-323.							
CORRECTIVE ACTION-NONE. FAILURE OF TWO RATE GYRO GROUP WAS UNCONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3371F GYRO-3MRD	FAR 27-41008-855	25F 820724	SCHILLIN	YES NO	60/C	894897
FAILURE MODE-ELECTRICAL OPEN. GYRO PACKAGE WAS IN/D FOR A NO-GO INDICATION OF THE 3MRD CIRCUIT. ELECTRICAL TESTS CONFIRMED FAILURE. DISASSEMBLY SHOWED 3MRD WINDING HAD AN INTERMITTENT OPEN.							
CORRECTIVE ACTION-NONE. IMMEDIATE CORRECTIVE ACTION TAKEN AS CAUSE OF WINDING FAILURE WAS NOT DETERMINED. HOWEVER 60/C WILL MONITOR THIS TYPE OF PROBLEM IN AN ATTEMPT TO ISOLATE ANY WINDING DISCREPANCIES THAT MAY EXIST.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3484-F DISPLACEMENT GYRO ROLL SIGNAL AMPL IFIER	FAR 27-41008-855	820723	SCHILLIN	NO NO		892794
FAILURE MODE-OUT OF TOLERANCE. THE AUTOPLOT GYRO WAS IN/D FOR OUT-OF-TOLERANCE ROLL SAINS. THE PACKAGE WAS OPENED AND THE ROLL SIGNAL AMPLIFIER (P/N 27-41979-813) REMOVED AND TESTED. THE OUT-OF-TOLERANCE FAILURE WAS CAUSED BY A MI 6M A-C SIGNAL APPLIED TO THE ROLL-DISPLACEMENT EMITTER FOLLOWER DURING CHECKOUT OR TROUBLE SHOOTING.							
CORRECTIVE ACTION-NONE. INVESTIGATION OF SOURCE OF THE MISAPPLIED VOLTAGE IS NOT POSSIBLE AS BASE IS SOLD OFF TO AIR FORCE.							

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SYSTEM	TEST/REPORT NUMBER	DIP DATA SOURCE	VEHICLE	SITE	PRI	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE DIP	TIME DIP	OTH	VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9N-04-33877 AMPLIFIER-TRANSISTOR	FAR 27-45202	820716	SCHELLIN	YES 6 NO	8946951
FAILURE MODE-FAIL DURING OPERATION. GYRO PACKAGE FAILED TO HULL AFTER SUCCESSFUL COMPLETION OF TEST. FAILURE ANALYSIS FOUND DEFECTIVE TORQUE AMPLIFIERS IN PITCH AND YAW CHANNELS. EMITTER RESISTORS R19 AND R20 WERE BURNED. TRANSFORMER T1 CRACKED AND TRANSISTOR Q5 HAD A BURNED COLLECTOR LEAD. THESE ARE TYPICAL SYMPTOMS OF THE THERMAL RUNAWAY PROBLEM EXPERIENCED WITH EN339 TRANSISTOR USED IN THIS CIRCUIT.						
CORRECTIVE ACTION-TORQUE AMPLIFIER WAS REDESIGNED THE EN339 TRANSISTOR WAS REPLACED BY THE 2M499. A HIGHER RATED DEVICE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9P-04-33827 GYRO-SMRD	FAR 27-41002-855	820716	PLATTSDU	NO RG NO	895167
FAILURE MODE-FAIL TO OPERATE. THE ROLL-RATE GYRO HAD NO SMRD OUTPUT. THE CAPACITOR WAS OPENED AND THE SMRD WINDING WAS FOUND BURNED OPEN. ALSO DIODES CR1 AND CR2 AND TRANSISTOR Q1 WERE DAMAGED. THESE FAILURES ARE SIMILAR TO THOSE C NOTED IN REL 82-84-083 AND COULD ONLY HAVE BEEN CAUSED BY IMPROPER VOLTAGE APPLICATION TO THE SMRD CIRCUIT.						
CORRECTIVE ACTION-ED/C INFORMED ALL PERSONNEL HANDLING GYROS OF THE EXTREME CAUTION TO BE EXERCISED WHEN OPERATING AND TROUBLE SHOOTING SMRD CIRCUITS REF TOW 107-118 DATED 820726.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9N-04-34027 DISPLACEMENT GYRO	FAR 27-41002-855	18F 820717	820717	YES NO CO/C	897709
FAILURE MODE-REPORTED OUT OF TOLERANCE. SPIN MOTOR ROTATION DETECTOR SMRD NO-60 WAS RECEIVED ON CARD 303 OF MAPCME DECR 433. FAILURE ANALYSIS DID NOT CONFIRM FAILURE. PROBLEM COULD BE IN RATE GYRO GROUP OF SMRD.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION WAS TAKEN BECAUSE FAILURE WAS UNCONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9B-04-34117 DISPLACEMENT GYRO	FAR 27-41002-855	18F 820717	820717	FACTORY NO NO	897576
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. YAW DISPLACEMENT GYRO NO-60 INDICATION DURING FINAL FACTORY CHECKOUT. PROBLEM TRACED TO A STICKING RELAY IN THE ASS CHASSIS OF THE MAPCME TRAILER.						
CORRECTIVE ACTION-NONE.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTN	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3312P RATE GYRO	FAR 27-41703-809	1800 620717	WTR	NO NO		893793
FAILURE MODE-NONE. REMOTE GYRO CANISTER REMOVED BECAUSE IT WAS A MATCHED SET TO THE MAIN GYRO CANISTER WHICH HAD FAILED. SEE FAR A-90-04-3317P.							
CORRECTIVE ACTION-NONE. THERE WAS NO FAILURE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-90-04-3402-P GYRO-SMRD	FAR 27-41002-833	187 620717	SHILLING	YES NO	CO/C	893832
FAILURE MODE-FAIL DURING OPERATION. A NO-GO INDICATION WAS RECEIVED FROM THE SPIN MOTOR ROTATION DETECTOR DURING A WAPCHE CHECK.							
CORRECTIVE ACTION-NONE-FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-90-04-3441-P HEATER	FAR 27-41002-833	71-P 620714	DYES	YES NO		893865
FAILURE MODE-OUT OF TOLERANCE. REPORTED OUT OF TOLERANCE WITH RESPECT TO FINE HEATER VOLTAGE. FAILURE CAUSED BY INADEQUATE WARMUP TIME BEING CALLED OUT IN TEST PROCEDURE.							
CORRECTIVE ACTION-PROCEDURE 27-41084-1 WAS CHANGED TO ALLOW ADEQUATE WARMUP TIME.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3330C TRANSFORMER	FAR	620712	FACTORY	YES NO	A.C-ELECTRIC AC3893	894710
FAILURE MODE-FAIL DURING OPERATION. THE TRANSFORMER FAILED DURING BENCH TEST. FAILURE ANALYSIS WAS CANCELLED BECAUSE THE PART WAS NOT RECEIVED. THE TRANSFORMER WAS SCRAPPED.							
CORRECTIVE ACTION-NONE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3209-P RATE GYRO, SMRD	FAR 27-04324-3	620711	FACTORY	YES NO	MINI-MONEYMELL JRB0101A	
FAILURE MODE-OUT OF TOLERANCE. SPIN-MOTOR ROTATION-DETECTOR (SMRD) OUTPUT WAS LESS THAN THE 0.5-VOLT PEAK REQUIRED, DUE TO DEMAGNETIZATIONS OF THE SMRD MAGNET.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	DATE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-60/CONVAIR INFORMED ALL PERSONNEL HANDLING GYROS OF PRECAUTIONS TO BE TAKEN WHEN TROUBLE SHOOTING OPERATING GYROS. WILL CONTINUE TO MONITOR THE PROBLEM IN AN EFFORT TO DETERMINE CORRECTIVE ACTION TO BE TAKEN.						090056
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-9L-04-3334F AMPLIFIER-DIODE	FAR 27-41002-899	820711	LINCOLN	YES NO		094729
FAILURE MODE-ELECTRICAL SHORT. GYRO PACKAGE FAILED DUE TO NO TORQUING GAIN. FAILURE ANALYSIS CONFIRMED FAILURE TO PITCH SIGNAL AMPLIFIER WHICH HAD SHORT-CIRCUITED ZENER DIODES CR3 AND CR4 (8V-11 OR IN 765).							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	3P-98-04-3254F AMPLIFIER DIODE	FAR 27-41002-899	820710	ETR	YES TEXAS INSTRUMENT NO MT		094375
FAILURE MODE-OPEN-ELECTRICAL. MAIN GYRO CAN WAS REJECTED WHEN VERNIER ENGINES CHANGED POSITION SUDDENLY. FAILURE WAS ISOLATED TO AN OPEN DIODE CR3 IN THE ROLL SIGNAL AMPLIFIER. DIODE (893CA-TEXAS INSTRUMENTS) HAD DEFECTIVE WELD JOINT.							
CORRECTIVE ACTION-TEXAS INSTRUMENTS REDESIGNED LEAD FORMING MACHINE AND INSTITUTED 100 PERCENT INSPECTION AFTER MELTING.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3338F AMPLIFIER-DIODE	FAR 27-41002-899	33F 820709	SCHILLIN C	NO NO		093163
FAILURE MODE-SHORTED. GYRO CANISTER WAS IR/D AS HAVING A SHORTED ROLL AMPLIFIER OUTPUT. DIODES CR1, CR2, CR3, AND CR4 WERE FOUND SHORTED. A HIGH VOLTAGE MUST HAVE BEEN APPLIED ACROSS THE ZENER DIODES DESIGNED TO CLIP AT 14 VOLTS. THIS HIGH VOLTAGE WAS APPLIED FROM A POINT EXTERNAL TO CANISTER.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	HG-99-04-1495-F TEMPERATURE CONTROL AMPLIFIERS	FAR 80-0790-081	820707	FACTORY	YES MAGNETIC CONTR NO OLS TCTC-1		
FAILURE MODE-FAIL DURING OPERATION. TEMPERATURE CONTROL AMPLIFIERS FOR PITCH ROLL AND YAW FAILED DURING OPERATION DUE TO BURNING OF ALL 3 AMPLIFIERS. CAUSE OF FAILURE NOT DETERMINED DUE TO PARTIAL DESTRUCTION DURING DE-POTTING. SUSPECT EXCESSIVE INPUT ON OUTPUT CURRENT.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE	SITE DIP TIME	PRI DIP	OTH DIP	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE FOR THIS SPECIFIC UNIT, HOWEVER, GO/C AND THE VENDOR ARE INVESTIGATING THE PROBLEM OF FAILED AMPLIFIERS OF THIS TYPE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3225F	FAR 27-41002-855	820707	ALTUS	NO	GO/C NO	
FAILURE MODE-FAIL DURING OPERATION. MARCHE TEST INDICATED GYRO DAMAGE. ROLL TORQUE AMPLIFIER OUTPUT TRANSFORMERS WERE CRACKED, ONE OUTPUT TRANSFORMER IN YAW TORQUE WAS CRACKED AND THE CHOKE IN THE GYRO POWER SUPPLY WAS CRACKED. DAMAGE WAS ATTRIBUTED TO WIRING ERROR FOUND IN ALTUS TEST EQUIPMENT. SEE IN824003.							
CORRECTIVE ACTION-TEST EQUIPMENT WIRING ERROR WAS CORRECTED BY BASE PERSONNEL. NO OTHER CORRECTIVE ACTION WAS TAKEN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	P2-ACO-03-145 AMPLIFIER-DIODE	COMPOSITE-J FACT 420706 27-41379-813	1450 420706	12 PLUS 18	YES NO		
FAILURE MODE-FAIL DURING OPERATION ROLL SIGNAL AMPLIFIER FAILED CAUSING VERNIER ENGINES TO JUMP FROM 35 DEGREES TO 45 DEGREES IN ROLL AT 18 SECONDS. LAB TEST INDICATED HIGH ROLL GYRO AMPLIFIER OUTPUT AND LOSS OF ZENER DIODE LIMITIN G.							
SYSTEM EFFECT-ERRATIC OPERATION. AT T PLUS 18 SECONDS BOTH VERNIER ENGINES JUMPED FROM 35 DEGREES TO 45 DEGREES IN A CLOCKWISE ROLL DIRECTION. NINE RUNS MADE AFTER THE TEST DID NOT REPEAT THIS ANOMALY.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-REPLACED GYRO CANISTER. REF. IN824009							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3225F PITCH-DISPLACEMENT GYRO BEARING	FAR 27-41002-855	820703	SCHILLIN	YES	NEARPOTT NO	
FAILURE MODF-FAIL DURING OPERATION. GYRO PACKAGE FAILED MARCHE. NO-GO ON SHRO CIRCUIT. THE INVESTIGATION REVEALED A PIN-MOTOR BEARING LUBRICANT HAD DRIED IN ONE BEARING, CAUSING EXCESSIVE WEAR OF THE BEARING RACE.							
CORRECTIVE ACTION-GYROSCOPES OF A MODIFIED DESIGN ARE NOW BEING FURNISHED GO/C UNDER A NEW PART NO. 7-04250-803.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3225F DISPLACEMENT GYRO MOTOR	FAR 7-04250-3	820703	FACTORY	YES	NEARPOTT NO	
FAILURE MODE-STRUCTURAL. THE REPORTED FAILURE WAS NOISY SPIN MOTOR BEARING. FAILURE ANALYSIS FUNCTIONAL TESTS INDICATED A POSSIBLE ROUGH SPOT ON THE SPIN MOTOR BEARING ALTHOUGH SPIN MOTOR PERFORMANCE AS JUDGED BY CORRECT CRITERIA							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
WAS ENTIRELY ACCEPTABLE. THE GYRO, IN GENERAL, SHOWED ONLY NORMAL WEAR WITH THE EXCEPTION OF SOME LEAKAGE AROUND THE FILL SCREW.							895601
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. FACTORY PERSONNEL WERE INFORMED THAT THERE IS NO CRITERIA FOR REJECTION OF GYROS BASED ON NOISE. REARFOOT QUALITY CONTROL WAS INFORMED OF THE LEAKING FILL SCREW. THEY WERE REQUESTED TO MONITOR THE FILL SCREW INSTALLATION AND SEALING PROCEDURE AND TO IMPROVE QUALITY CONTROL IN THIS AREA.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3294P GYRO, DISPLACEMENT	FAR 7-04290-1	620705	FACTORY	YES	REARFOOT NO	895477
FAILURE MODE-OUT OF TOLERANCE. GYRO HAD HIGH SENSITIVITY DURING BENCH TEST. DISCREPANCY WAS NOT CONFIRMED DURING FAULT ANALYSIS.							
CORRECTIVE ACTION-NONE-FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3412-P GYROSCOPE-DISPLACEMENT	FAR 7-04290-3	620705	FACTORY	YES	REARFOOT NO C-70-2508-000	894275
FAILURE MODE-FAT. DURING OPERATION. FAILURE DUE TO DETEIORATION OF SPIN MOTOR BEARING LUBRICANT.							
CORRECTIVE ACTION-NONE-REARFOOT WORKING TO IMPROVE BEARING LIFE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3340P RELAY	FAR 27-41002-835	53F 620703	DYES3	NO	NO	894722
FAILURE MODE-OUT OF TOLERANCE-GYRO PACKAGE HAD INDICATED INCORRECT GYRO TEMPERATURE. THE FAULT WAS TRACED TO A FAILED RELAY LOCATED IN THE MAG. AMP. TEMP. CONTROLLER VOLTAGE SUPPLY CIRCUIT. REPORT A-99-48-074P CONTAINS A COMPLETE ANALYSIS OF THE FAILED RELAY.							
CORRECTIVE ACTION-NONE-SECONDARY FAILURE.							
AUTOPILOT SQUARE-A/B GYRO PACKAGE	A-99-04-3390P RATE GYRO	FAR 27-49045-5	53F 620703	DYES3	NO	YES	
FAILURE MODE-FAIL DURING OPERATION. THE REMOTE TWO-RATE GYRO GROUP WAS IR/D FOR NO APPARENT OUTPUT FROM THE GYRO MEASURES. OPERATIONAL TIME AT FAILURE WAS 598.2 HOURS. FAILURE WAS NOT CONFIRMED. TROUBLE WAS FOUND IN MAIN AUTOPILOT CABLES WHICH WAS IR/D AT SAME TIME (IR 760366, PWAR D-218).							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBACANE

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE						
SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE-FAILURE WAS NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	HC-99-04-3318P AMPLIFIER	FAR 27-41002-833	1130 820700	FACTORY	YES NO	
FAILURE MODE-SHORT (ELECTRICALLY)-DURING ELECTRICAL ACCEPTANCE TESTS THE YAW GUIDANCE SLAVING SENSITIVITY WAS 30 PER CENT BELOW NOMINAL. INDUCTOR L1 WAS FOUND TO HAVE A CONSIDERABLE NUMBER OF SHORTED TURNS DUE TO BREAKDOWN OF THE INSULATING COATING ON THE WINDINGS.						
CORRECTIVE ACTION-NONE. THE VENDOR IS OUT OF BUSINESS NO NO CORRECTIVE ACTION COULD BE OBTAINED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3283P CLOCK, ELAPSED TIME INDICATOR	FAR 27-41002-833	820700	STANMORE	YES NO	
FAILURE MODE-FAILED DURING OPERATION. ELAPSED TIME INDICATOR FAILED TO INDICATE. TEETH OF BRASS SPUR GEAR WERE FOUND DAMAGED. DAMAGE WAS ATTRIBUTED TO BUILD UP OF TOLERANCES CAUSING BINDING OF MECHANISM.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3325P GYRO	FAR 27-41002-833	820830	LINCOLN	YES NO	
FAILURE MODE-OUT OF TOLERANCE. GYRO PACKAGE WAS REJECTED. ROLL TORQUING WAS SUSPECTED AS BEING OUT OF TOLERANCE. A CHECK REVEALED NO DISCREPANCIES, ALSO A MODIFIED PROOF WAS CONDUCTED WITH NO DISCREPANCIES.						
CORRECTIVE ACTION-PERSONNEL AT LINCOLN AFB WERE INFORMED OF THE RESULTS OF THIS ANALYSIS.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3318P DISPLACEMENT GYRO	FAR 27-41002-833	31P 820830	GYESS	NO NO	
FAILURE MODE-FAIL DURING OPERATION-NO 60 WAS FOUND ON CARD 321 DURING MARCHE PROCEDURE 27-98451-903 INDICATING A FAILURE OF THE PITCH DISPLACEMENT GYRO TO NULL. FAILURE COULD NOT BE CONFIRMED. ALSO SERVOAMPLIFIER CANISTER WAS IN/O (SR 873807) AND FAILURE IN THE V-2 PITCH CHANNEL OF THE SERVO CANISTER WAS CONFIRMED.						
CORRECTIVE ACTION-NONE AS THE REPORTED FAILURE WAS UNCONFIRMED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3411P RATE GYRO MOTOR	FAR 27-04374-3	820829	FACTORY	YES	MINN-MONEYWELL NO JRS101A2	897235
FAILURE MODE-OPEN-ELECTRICAL. THE RATE GYROSCOPE FAILED DURING MANUFACTURING TESTING WHEN AN OPEN CIRCUIT FROM PINS B TO C WERE REPORTED. FAILURE ANALYSIS FOUND OPEN CIRCUIT IN PHASE B OF THE SPIN MOTOR WINDING.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION WAS POSSIBLE SINCE THE ACTUAL CAUSE OF THE FAILURE WAS NOT DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3411P GYROSCOPE-RATE	FAR 27-04374-3	820829	FACTORY	YES	MINNEAPOLIS NO NO MONEYWELL JRS-101A2	894274
FAILURE MODE-OPEN (ELECTRICAL). PHASE B WINDING OF SPIN MOTOR FAILED OPEN.							
CORRECTIVE ACTION-WOKE-EXACT CAUSE OF OPEN WAS NOT DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3370P GYRO-DISPL. HEATER	FAR 7-04230-3	820827	FACTORY	YES	REARFOIT NO	894886
FAILURE MODE-ERRATIC OPERATION. THE DISPLACEMENT GYRO WAS IR/D WHEN ELECTRICAL TESTING REVEALED AN OSCILLATING FINE HEATER. FUNCTIONAL TESTING DID NOT CONFIRM THE REPORTED FAILURE. SINCE FIVE MET ALL REQUISITE PARAMETERS. NO FURTHER DISASSEMBLY WAS DONE.							
CORRECTIVE ACTION-FACTORY PERSONNEL ADVISED TO TEST DATA ON GYRO FINE HEATERS BEFORE REJECTING THEM.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-109-04-3283P GYRO, DISPLACEMENT	FAR 27-04230-3	820827	FACTORY	YES	REARFOIT NO	891014
FAILURE MODE-STRUCTURAL. FIFTEEN GYROS WERE REJECTED FOR HIGH DRIFT. DRIFT ATTRIBUTED TO DISTORTED FLEX LEADS. REAS ON FOR DISTORTED LEADS NOT FOUND.							
CORRECTIVE ACTION-Baffles were incorporated into gyros to protect flex leads from flow of flotation fluid.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-98-04-3381P RATE GYRO	FAR 27-41701-808	820828	ETR	YES	NO	
FAILURE MODE-FAIL DURING OPERATION. THE REMOTE RATE GYRO GROUP WAS IR/D BECAUSE OF A MECHANICAL GRINDING NOISE THAT CHANGED IN PITCH. A GYRO BEARING FAILURE WAS SUSPECTED. FAILURE COULD NOT BE CONFIRMED. 27 HOURS OF TESTS ON CANIST							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTN	VENDOR NAME VENDOR PART NO
ER AND GYRO FAILED TO SHOW ANY IRREGULARITY.						
CORRECTIVE ACTION-NONE-FAILURE COULD NOT BE CONFIRMED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3241-F GYRO	FAR 27-48045-3	820623	LINCOLN	YES 60/C NO	994343
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. TWO RATE AND MAIN GYRO PACKAGES WERE REJECTED WHEN MARCHE P-1 TEST SHOWED PITCH RATE TORQUING GAIN OUT OF SPEC. ROLL RATE GYRO IN MAIN PACKAGE FAILED AT SAME TIME. NO FAILURE WAS CONFIRMED IN THE TWO RATE GROUP. DOCUMENTATION OF ANALYSIS OF MAIN GYRO CAN WAS NOT FOUND.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3308P RATE GYRO 8060	FAR 27-04374-3	820622	FACTORY	YES MONEYWELL NO JRS101A2	997380
FAILURE MODE-OUT OF TOLERANCE. 2PIN MOTOR ROTATION DETECTOR PULSES WERE LOW. PROBLEM TRACED TO DEMAGNETIZATION OF THE 3MRD MAGNET.						
CORRECTIVE ACTION-3MRD MAGNET WAS REMAGNETIZED BY A VENDOR APPROVED PROCEDURE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3443-F REPLACEMENT GYRO	FAR 7-04250-3	820622	FACTORY	YES KEARFOIT NO C70-2508-000	995032
FAILURE MODE-ERRATIC OPERATION. THE INTERNAL SENSING ELEMENT SHOWED INTERMITTENT DURING TEST. DURING FAILURE ANALYSIS, THIS WAS NOT CONFIRMED. HOWEVER THE FINE HEATER VOLTAGE WAS ERRATIC.						
CORRECTIVE ACTION-NONE. THE REPORTED FAILURE COULD NOT BE CONFIRMED AND THE CAUSE OF THE ERRATIC VOLTAGE COULD NOT BE DETERMINED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3374F RATE GYRO MICROSYN POTENTIOMETER	FAR 27-41002-903	1200 820622	WTR	YES NO	
FAILURE MODE-ELECTRICAL OPEN. GYRO IR/D DUE TO NO VAN-RATE GYRO OUTPUT WHEN A RATE INPUT WAS INTRODUCED. RESISTANCE MEASUREMENTS REVEALED AN OPEN CIRCUIT IN THE SIGNAL GENERATOR MICROSYN RESOLVER.						

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CORRECTIVE ACTION-VENDOR (MINN.-HONEYWELL) OF SYRO UNIT HAS IMPROVED HIS QUALITY CONTROL PROCEDURES. REF MINNEAPOLIS-HONEYWELL REPORT JRS-1082-3 DATED OCT. 1965.							094893
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-49-04-3221-F RATE GYRO SHRD	FAR 27-41002-855	620820	FACTORY	YES	ASTRONAUTICS NO 27-41002-855	096079
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- DURING AUTOPILOT TESTS NO OUT PUT FROM RPM- MOTOR ROTATION-DETECT OR (SHRD) COULD BE OBSERVED. FAILURE DUE TO A DEMAGNETIZED SHRD MAGNET IN THE ROLL RATE GYRO.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9L-04-3240F GYRO-THERMOSTAT	FAR 27-43045-3	620820	LINCOLN	YES	60/C NO	094257
FAILURE MODE- OUT OF TOLERANCE. TWO RATE PACKAGE TEMPERATURE FAIL SIGNALS CAME ON FOR 1.5 MINUTES DURING 40 MINUTE HOLD WITH LIQUID NITROGEN ON BOARD. FAILURE WAS ATTRIBUTED TO INCORRECT SPEC FOR THERMOSTAT SETTING. HEATER WAS FOUND 0 TO LAG TEMPERATURE CHANGE.							
CORRECTIVE ACTION-THERMOSTAT SETTING WAS CHANGED. REF ECP 1437.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3303F RATE GYRO	FAR 27-04574-3	620810	FACTORY	YES	HONEYWELL NO JRS 101AE	097543
FAILURE MODE-OUT OF TOLERANCE-GYRO WOULD NOT MEET TORQUING CALIBRATION SPECIFICATIONS DURING VIBRATION PORTION OF ECP 330-20.9E.							
CORRECTIVE ACTION-NONE. REPORTED FAILURE WAS NOT CONFIRMED AFTER EXTENSIVE RETESTING.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-3220-F RATE GYRO	FAR 27-41002-909	1290 620810	FACTORY	YES	ASTRONAUTICS NO 27-41002-909	096476
FAILURE MODE-OUT OF TOLERANCE. DURING THE PLUS ROLL TORQUING TEST, IN FLIGHT CONTROL CHECKS ON MISSILE 1290, THE REPORTED FAILURE WAS A HIGH OUT OF TOLERANCE GAIN IN THE ROLL CHANNEL. FAILURE DUE TO A TOLERANCE BUILDUP.							
CORRECTIVE ACTION-CALIBRATION WILL BE PERFORMED AT A 2.0 VOLT LEVEL BASED ON CURRENT AGENA PROGRAM TRAJECTORY REQUIREMENTS. SYSTEM LEVEL TORQUING TESTS WILL BE PERFORMED AT THE CALIBRATION LEVEL OF 2.0 VOLTS. FULL WIDTH OF BANDWIDTH CHART WILL BE USED TO RECORD ENGINE POSITION OUTPUT RAMP FUNCTION.							

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	34-80-04-3213F RATE GYRO	FAR 27-41703-809	820812	WTR	YES NO	ASTRONAUTICS 27-41703-809	898077
FAILURE MODE-OPEN (ELECTRICAL). PITCH-RATE GYRO TORQUE WINDING CIRCUIT WAS OPEN.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-94-04-3304F AMPLIFIER TRANSISTOR	FAR 27-41586-807	417 820812	AAFB	YES NO		897844
FAILURE MODE-SHORT (ELECT). NO-60 ON MARCHE ROLL TORQUING TEST. TRANSISTOR CASE OF 86 WAS FOUND SHORT CIRCUITED TO THE CIRCUIT BOARD HEAT SINK. EXACT LOCATION OF SHORT CIRCUIT COULD NOT BE CONFIRMED. MOST PROBABLE CAUSE WAS SMALL CUT IN THE TAPE ISOLATING THE TRANSISTOR CASE FROM THE HEAT SINK. TRANSFORMER T1 FAILED AS A RESULT OF THE TRANSISTOR SHORT.							
CORRECTIVE ACTION-NONE. MANUFACTURING PERSONNEL REMINDED OF PROPER TRANSISTOR MOUNTING PROCEDURES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-29-04-3278F GYRO RATE	FAR 27-04574-3	820812	FACTORY	YES NO	HONEYWELL JR5101A2	891028
FAILURE MODE-OUT OF TOLERANCE. GYRO WAS REJECTED FOR HAVING A BURNED OUT MILLING RESISTOR. FAILURE WAS NOT CONFIRMED. MILLING RESISTOR WAS IN SPEC ALTHOUGH IT APPEARED TO HAVE BEEN BLACKENED FROM AN EXTERNAL SOURCE. IT WAS NOT LEARNED WHERE OR WHEN THE RESISTOR BECAME BLACKENED OR IF THE GYRO WAS REJECTED FROM A GYRO CAN.							
CORRECTIVE ACTION- NONE. FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-45-04-3211-F DISPLACEMENT GYRO TRANSISTOR	FAR 27-41002-899	83F 820811	FACTORY	YES NO		897568
FAILURE MODE-STRUCTURAL. NO-60A WERE RECEIVED ON CARDS 745 AND 747 DURING MARCHE CHECKOUT. TRANSISTOR 84 IN PITCH T ORGUGER AMPLIFIER WAS HEAT SENSITIVE. ANALYSIS OF TRANSISTOR SHOWED CRACK IN SILICON CHIP.							
CORRECTIVE ACTION-VENDOR WAS CONTACTED. HE REPLIED THAT THE 2N338 DEVICES ARE INSPECTED BEFORE ENCAPSULATION, BUT WILL INCREASE SURVEILLANCE AND AUDIT OF THIS INSPECTION. VENDORS RECORDS SHOW NO PROBLEM WITH CRACKED CHIPS.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9M-04-3326F TORQUEM AMPLIFIER-TRANSISTOR	FAR 27-41002-855	620606	ALTUS	NO	60/C NO	896083
FAILURE MODE-ELECTRICAL SHORT. GYROSCOPE CANISTER FAILED DURING CHECKOUT PER PROCEDURE 27-98401 PART 5. THE PITCH GYRO DID NOT NULL. ALSO YAW TORQUEM WAS ERRATIC. TRANSISTORS Q8 AND Q9 TYPE M6 (2N539) WERE SHORTED EMITTER-TO-COLLECTOR. THE TRANSISTOR Q8 TYPE 2N535 SHORT CIRCUITED ALL THREE ELEMENTS. FAILURE PROBABLY CAUSED BY A MISAPPLICATION OF VOLTAGE ON THE GYROSCOPE INTERNAL PWR. SUPPLY DURING SITE MODIFICATIONS.							
CORRECTIVE ACTION-BASE PERSONNEL CAUTIONED TO MAKE SURE THAT POWER IS NOT TURNED ON WHILE THEY ARE PERFORMING MODIFICATIONS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9M-04-3307F TRANSFORMER TRANSISTOR	FAR 27-41378-815	620606	FACTORY	NO		897579
FAILURE MODE-SHORT(ELECT). TRANSFORMER T-1 WAS CRACKED. PRIMARY WINDING FOUND TO BE OPEN. INVESTIGATION REVEALED COLLECTOR OF TRANSISTOR, WHICH IS INTERNALLY CONNECTED TO THE CASE, WAS SHORTED TO GROUND. A FINE CRACK WAS FOUND IN THE MYLAR TAPE USED TO INSULATE CASE FROM CHASSIS. NO DIRECT EVIDENCE THAT THIS CAUSED SHORT.							
CORRECTIVE ACTION-NONE. CAUSE OF TRANSISTOR SHORT COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9L-04-3419-F AMPLIFIER TRANSFORMER	FAR 27-41002-855	620606	LINCOLN	YES NO		894155
FAILURE MODE-SHORT (ELECTRICAL). SHORTED WINDING IN INTERSTAGE TRANSFORMER OF YAW TORQUEM AMPLIFIER DUE TO INADEQUATE IMPREGNATION.							
CORRECTIVE ACTION-A DOUBLE VOLTAGE DOUBLE FREQUENCY TRANSFORMER TEST WAS ADDED TO RECEIVING INSPECTION PROCEDURES.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9M-04-3247-F GYRO	FAR 27-41002-855	620607	SCHILLIN	YES NO	60/C NO	894255
FAILURE MODE-OUT OF TOLERANCE. PITCH GYRO FAILED TO NULL.							
CORRECTIVE ACTION-NONE-FAILURE NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3242F RATE GYRO	PAR 27-04301-1	620807	FACTORY	YES	HOMETELL NO JRT 114	091700
FAILURE MODE-OUT OF TOLERANCE. TWO RATE GYROS WERE REJECTED FOR NOISY SPIN MOTORS FROM SAME GYRO CAN P/N 27-41703-8 03 SERIAL 47.							
CORRECTIVE ACTION-NONE. PRESENCE OF NOISE WAS NOT VERIFIED. NO SPECIFICATION FOR NOISE IN SPIN MOTOR EXISTS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-03-3236-F CIRCUIT BOARD DIODE	PAR 27-41804-3	620806	FACTORY	NO		096302
FAILURE MODE-SHORT-ELECTRICAL. TWO LOGIC 4 BOARDS WERE REJECTED FOR HAVING PARTIALLY SHORTED DIODES. DIODES WERE TESTED WITH OHMMETER. SHORTED DIODES WERE ATTRIBUTED TO USE OF OHMMETER RATHER THAN APPROVED DIODE TESTER.							
CORRECTIVE ACTION-EOP WAS REVISED TO REQUIRE USE OF SIMPSON 269 FOR CHECKING DIODE LEAKAGE RESISTANCE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3244F AMPLIFIER	PAR 27-45045-5	620806	SHILLING	NO		093736
FAILURE MODE-OUT OF TOLERANCE-REFERENCE IN 787406. CAN WAS REJECTED FOR LOW READING IN YAW CHANNEL. EMITTER FOLLOWED IN AMPLIFIERS WERE FOUND BADLY BURNED. A WIRING ERROR WAS FOUND IN THE UNB LICAL-J-BOX AT COMPLEX 07. THE FAILURE WAS ATTRIBUTED TO THIS WIRING ERROR.							
CORRECTIVE ACTION-WIRING ERROR IN UNB LICAL J-BOX WAS CORRECTED. NO OTHER CORRECTIVE ACTION WAS TAKEN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3322F SARD-CIRCUIT BOARD	PAR 27-431833	620805	FACTORY	YES		096079
FAILURE MODE-OUT OF TOLERANCE. SARD CIRCUIT BOARD WAS REJECTED FOR A REPORTED OUTPUT OF 0.4 VOLT. IT SHOULD HAVE BEEN GREATER THAN 10 VOLTS. THE CIRCUIT BOARD WAS ELECTRICALLY TESTED IN LAB AND IN FACTORY AND BOTH TIMES THE FAILURE WAS UNCONFIRMED.							
CORRECTIVE ACTION-NOT KNOWN.							

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SYSTEM	TEST/REPORT NUMBER	VEHICLE	DATE	SOURCE	DIP	TIME	SITE	PHI	VEHICLE NAME
SUQ-SYSTEM	FAILED COMPONENT NAME	DATE	DIP	TIME	DIP	TIME	DIP	TIME	VEHICLE NAME
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3283F GYRO DISPLACEMENT-SMRD	820805	FACTORY	YES	REARFOOT	NO			895470
FAILURE MODE-OUT OF TOLERANCE. SMRD OUTPUT WAS LOW. SMRD MAGNET HAD BEEN DEMAGNETIZED. CAUSE OF DEMAGNETIZATION WAS NOT LEARNED.									
CORRECTIVE ACTION-NONE-CAUSE OF FAILURE WAS NOT KNOWN.									
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3143-F SMRD	820805	SHILLING	NO	GO/C	NO			894250
FAILURE MODE- FAIL DURING OPERATION. GYRO CANISTER HAD NO OUTPUTS. EXTENSIVE DAMAGE AND OPEN-CIRCUITED COMPONENTS WERE FOUND IN ALL SIGNAL PATHS. A WIRING ERROR WAS FOUND IN THE UNILICAL JUNCTION BOX AFTER THE FAILURE OCCURRED. FAILURE OF THE GYRO IS ATTRIBUTED TO THIS WIRING ERROR.									
CORRECTIVE ACTION-WIRING ERROR WAS CORRECTED.									
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4010F SMRD	820804	FACTORY	YES	GO/C	NO	MS24399		895302
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. COMPONENT INDICATED GO ON A NO-GO TEST. FAILURE WAS NOT VERIFIED.									
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.									
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3274F DISPLACEMENT GYRO	820801	FACTORY	YES	REARFOOT	NO			893363
FAILURE MODE-OUT OF TOLERANCE. TWO GYROS, SERIAL NUMBERS 3828AB AND 3867ABDE, WERE REJECTED DUE TO NON-LINEAR OUTPUT S. IT WAS NOT DOCUMENTED WHETHER GYROS WERE IN THE GYRO CANNISTERS WHEN REJECTED.									
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.									

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3253-F GYRO	FAR 27-4100E-853	820323	2AF8	NO	60/C NO	994239
FAILURE MODE-OUT OF TOLERANCE. MAIN GYRO CAN WAS REJECTED FOR LOW TORQUE GENERATOR OUTPUT. NO DISCREPANCY WAS FOUND IN THE MAIN GYRO CAN. FAILURE WAS ATTRIBUTED TO FAULTY TEST EQUIPMENT AT THE SITE.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3378F RATE GYROSCOPE MICROSYN POTENTIOMETER	FAR 27-04574-3	820323	FACTORY	YES	MINN.-HONEYMEL NO L	994239
FAILURE MODE-OUT OF TOLERANCE-RATE GYRO FAILED AN IR/D FOR HIGH NULL VOLTAGE OUTPUT. THE FAILURE WAS CONFIRMED AND THE GYRO WAS DISASSEMBLED. THE SIGNAL GENERATOR ROTOR WAS FOUND BROKEN LOOSE FROM THE GYRO GIMBAL. EXAMINATION OF THE CEMENT INDICATED POSSIBLE INADEQUATE ADHESION OF THE BONDING CEMENT.							
CORRECTIVE ACTION-A END CAP PULL TEST ADDED TO INSPECTION PROCEDURES. ALSO A LIGHT SANDBLAST OPERATION WAS ADDED TO THE CONTACT SURFACE OF THE STAINLESS STEEL END CAP BEFORE CEMENTING TO INCREASE STRENGTH OF BOND.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3253-F GYRO-SHRD	FAR 27-43043-3	820323	SHILLING	NO	60/C NO	994239
FAILURE MODE-ELECTRICAL OPEN. UNIT WAS ON MISSILE 30F WHEN ANOTHER UNIT WAS DAMAGED BY OVER VOLTAGE. AN OPEN SHRD C IRCUIT WAS FOUND. FAILURE WAS ATTRIBUTED TO APPLICATION OF INCORRECT EXTERNAL VOLTAGE.							
CORRECTIVE ACTION-PERSONNEL REQUESTED TO CHECK ALL TEST VOLTAGES BEFORE APPLICATION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3244F GYRO	FAR 27-4100E-853	820321	SHILLING	NO	60/C YES	994239
FAILURE MODE-OUT OF TOLERANCE. SHRD INDICATED NO-60. FAILURE NOT CONFIRMED. SHRD NO-60 WAS ATTRIBUTED TO EITHER A F ATTURE IN THE TWO RATE GROUP OR GROUND TEST EQUIPMENT. FAR A-9H-04-3253 DOCUMENTS THE FAILURE ANALYSIS OF THE COMPAN ION TWO RATE GYRO CANNISTER.							
CORRECTIVE ACTION-NONE.							

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3845F GYRO	FAR 27-41002-855	820321	SHILLING NO	NO	893588
FAILURE MODE-OUT OF TOLERANCE. NO VOLTAGE PRESENT AT PITCH MONITOR OUTPUT LINE. CANISTER HAD EXTENSIVE DAMAGE TO AC AND DC CIRCUITS SUCH AS CHARRED GYRO COARSE HEATERS AND SPIN MOTOR TRANSFORMER OPEN CIRCUITED AND CRACKED. FAILURE WAS ATTRIBUTED TO IMPROPER APPLICATION OF VOLTAGE.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3257F DISPLACEMENT GYRO AMPLIFIER	FAR 27-41002-855	34F 820519	LAFB	YES NO	896381
FAILURE MODE-OUT OF TOLERANCE. MAIN GYRO CAN WAS REJECTED FOR PITCH DISPLACEMENT GYRO SENSITIVITY TOO HIGH AND FOR TEMPERATURE SENSITIVITY. TEMPERATURE SENSITIVITY WAS NOT CONFIRMED. PITCH GYRO LOST SYNC INTERMITTENTLY DURING FAILURE ANALYSIS. PITCH SIGNAL AMP RESISTOR RES WAS BURNED, DIODE CR5 WAS SHORTED, DIODE CR6 WAS OPEN, TRANSFORMER T1 WAS SHORTED PRIMARY TO SECONDARY.						
CORRECTIVE ACTION-GYRO SYNC PROBLEM WAS EXPECTED TO BE CORRECTED BY THE SPIN MOTOR RELIABILITY PROGRAM AT REARFOOT. NO ACTION WAS TAKEN ON THE DAMAGED SIGNAL AMPLIFIER BECAUSE ADEQUATE HISTORY WAS NOT AVAILABLE TO DETERMINE WHEN DAMAGE OCCURRED. DAMAGE WAS ATTRIBUTED TO MISAPPLICATION OF VOLTAGE.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	HG-98-04-3191-F HEATER-CONTROLLER	FAR 27-41002-897	820518	ETR	YES NO	893489
FAILURE MODE-ERRATIC OPERATION-DURING PERFORMANCE OF CHECKOUT PROCEDURE 27-90474-DK3J. THE PITCH DISPLACEMENT GYRO FINE HEATER WAS REPORTED TO HAVE AN INTERMITTENT READING. THE FAILURE WAS CONFIRMED AND TRACED TO THE MAGNETIC AMPLIFIER HEATER CONTROLLER. THE CONTROLLER OPERATES SATISFACTORY WHEN WARMED UP, BUT NOT WHEN COLD.						
CORRECTIVE ACTION-THE HEATER CONTROLLER WAS RETURNED TO THE VENDOR FOR ANALYSIS. RECORDS SHOW THAT THIS UNIT WAS MANUFACTURED DURING A PERIOD WHEN THE VENDOR WAS EXPERIENCING DIFFICULTY WITH POTTING TECHNIQUES. THE PROCESS HAS SINCE BEEN IMPROVED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3872F RATE GYRO	FAR 27-04374-3	820518	FACTORY	YES NO	893588
FAILURE MODE-SHORT (ELECT). GYRO HAD SHORTED TORQUE WINDING. SHORT WAS CAUSED BY POOR WORKMANSHIP.						
CORRECTIVE ACTION-HONEYWELL INCORPORATED INSULATION TO PREVENT SHORTS OF THIS NATURE FROM OCCURRING AGAIN. CHANGE WAS						

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3 EFFECTIVE ON GYRO MANUFACTURED AFTER MARCH 1962.							993364
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3282P GYRO, DISPLACEMENT	FAR 7-04230-3	620316	FACTORY	YES	KEARFOY	991013
FAILURE MODE-DRIFT. GYRO HAD EXCESSIVE DRIFT ON BENCH TEST. OPERATING TIME WAS 70.4 HOURS. FAILURE NOT CONFIRMED DU RING FAILURE ANALYSIS.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	DATA/EI-6MO-08-13 HEATER	COMPOSITE-FRD/DPL	13P 620310	578E-1	YES NO		996777
FAILURE MODE-FAIL DURING OPERATION. RATE GYRO HEATER FAILED DURING TEST. SYSTEM EFFECT-ERRATIC OPERATION. INTERMITTENT AUTOPILOT FAIL INDICATIONS. VEHICLE EFFECT-COMPOSITE ABORTED.							
CORRECTIVE ACTION-HEATER PLUG RECONNECTED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3209-F RATE-GYRO	FAR 27-04374-3	620308	FACTORY	YES	HONEYWELL NO JRS101A2	997797
FAILURE MODE-OUT OF SPECIFICATION. REJECTED BECAUSE THE GYRO COULD NOT BE CALIBRATED. NOT EXPLAINABLE BECAUSE GYRO CHECKED WITHIN SPECIFICATION. CALIBRATION IS PERFORMED BY ADJUSTING THE EMITTER FOLLOWER.							
CORRECTIVE ACTION-NONE. FAILURE WAS NOT EXPLAINABLE AND CAUSE COULD NOT BE DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3275-F MAGNETIC AMPLIFIER	FAR 80-07800-021	620303	FACTORY	YES	MAGNETIC CONTR NO QLS	993362
FAILURE MODE-FAILED DURING OPERATION. PITCH CHANNEL FAILED DURING BENCH CHECKOUT. FAILURE WAS CONFIRMED BUT NO ANALYSIS WAS PERFORMED. FAILURE WAS ATTRIBUTED TO FAULTY POTTING TECHNIQUE BY VENDOR, AS PART WAS MANUFACTURED DURING THE TIME THE VENDOR WAS HAVING DIFFICULTY WITH POTTING.							
CORRECTIVE ACTION-NONE.							

GENERAL INICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTM	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3208-C RATE GYRO CANISTER	FAR 27-45045-3	820301	FACTORY	YES	ASTRONAUTICS NO 27-45045-3	998034
FAILURE MODE-STRUCTURAL. BY VISUAL INSPECTION THE UNIT WAS NOT ACCEPTABLE FOR INSTALLATION DUE TO EXTENSIVE DAMAGE RESULTING FROM MISHANDLING.							
CORRECTIVE ACTION-NONE-ANALYSIS WAS CANCELLED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3210-F	FAR 27-41002-833	820301	8478	NO	ASTRONAUTICS NO 27-41002-833	997939
FAILURE MODE-CONTAMINATION. A MERCURY VAPORMETER TEST INDICATED THE PRESENCE OF MERCURY WITHIN THE CANISTER. THE CANISTER WAS CONTAMINATED BY THE DUDGE SYSTEM.							
CORRECTIVE ACTION-NONE. NO MERCURY WAS FOUND IN THE CANISTER.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3190-F GYRO-DISPLACEMENT	FAR 27-41002-833	820427	3YC	YES	REARFOIT NO	998063
FAILURE MODE-ERRATIC OPERATION-DURING CHECKOUT, AN INTERMITTENT SPIN MOTOR ROTATION DETECTOR (SMRD) SIGNAL WAS NOTED. THE FAILURE WAS CONFIRMED AND WAS FOUND TO BE DUE TO A DISTORTED SMRD FLEX LEAD IN THE YAW DISPLACEMENT GYRO. THE DISTORTED LEAD, IT IS BELIEVED, WAS CAUSED BY THERMAL SHOCK FROM REPEATED HEATING AND COOLING CYCLES.							
CORRECTIVE ACTION-CORRECTIVE ACTION WAS TAKEN BY THE VENDOR THROUGH INCORPORATION OF A HEAVIER FLEX-LEAD RIBBON. THE EFFECTIVE DATE OF THE CHANGE WAS JANUARY, 1962.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-88-04-31877 GYRO-SMRD	FAR	820427	3YC	YES	NO	998022
FAILURE MODE-ERRATIC OPERATION-THE TWO RATE GYRO PACKAGE PROVIDED AN INTERMITTENT SMRD SIGNAL OUTPUT. THE TWO RATE PACKAGE AND THE MAIN GYRO PACKAGE WERE SUBJECTED TO TESTS. THE FAILURE WAS CONFIRMED AND ISOLATED TO THE SMRD SIGNAL OUTPUT OF THE YAW DISPLACEMENT GYRO IN THE MAIN GYRO PACKAGE. THERE WAS NO FAILURE IN THE TWO RATE PACKAGE.							
CORRECTIVE ACTION-UNKNOWN.							

GENERAL INICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI DIP	OTH DIP	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AE42-0352/32-801-A1-59 AUTOPILOT DISPLACEMENT GYRO SPIN M 27-41002-895 OTOR	CAPTIVE 27-41002-895	59P 820424	3-2 1-53	YES NO		992264
FAILURE MODE-ERRATIC OPERATION. AN AUTOPILOT GYRO SPIN MOTOR FAILED IN ONE OR MORE OF THE 3 DISPLACEMENT GYROS DUE TO AN INADEQUATE SYNCHRONOUS SPEED BUILDUP. THIS FAILURE CLEARED 1.27 SECONDS LATER.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-THE GYRO CANISTER WAS SUBSEQUENTLY IN/D (1R484154) AND REPLACED ON 820503.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AE42-0352/32-801-A1-59 AUTOPILOT RATE GYRO SPIN MOTOR.	CAPTIVE 27-45043-5	59P 820424	3-2 1-53	YES NO		992263
FAILURE MODE-ERRATIC OPERATION. AN AUTOPILOT GYRO SPIN MOTOR FAILED IN ONE OR MORE OF THE 3 RATE GYROS DUE TO AN IN ADEQUATE SYNCHRONOUS SPEED BUILDUP. THIS FAILURE CLEARED 1.27 SECONDS LATER.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-THE GYRO CANISTER WAS SUBSEQUENTLY IN/D (1R484153) AND REPLACED ON 820503.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-99-04-3176P GYRO-DISPLACEMENT	FAR 27-41002-907	118D 820423	MTR	YES NO	YES REARFOOT	993913
FAILURE MODE-DRIFT-THE FAILURE WAS INDICATED BY A HIGH DRIFT RATE IN THE PITCH DISPLACEMENT GYRO AND THE PITCH AND ROLL PROGRAM SLAVING WAS LOW (OUT-OF-TOLERANCE). ANALYSIS REVEALED THAT THE HIGH DRIFT RATE WAS DUE TO A DISTURBED FLEX LEAD. THE OUT-OF-TOLERANCE CONDITION WAS MOST PROBABLY DUE TO A FAULTY TEST SET DURING 1AT AND TEST SET TO TEST SET INCOMPATIBILITIES.							
CORRECTIVE ACTION-60/C AND THE VENDOR ARE STUDYING THE FLEX LEAD DISTORTION PROBLEM TO DETERMINE PROPER CORRECTIVE ACTION. DAILY CALIBRATION TESTS ON GYRO TEST SETS HAVE BEEN INSTITUTED. IN ADDITION A BECKMAN EXPANDED SCALE A-C VOL TMEYERS OF 0.1 PERCENT ACCURACY HAVE BEEN INSTALLED IN ALL TEST SETS IN USE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	M6-98-04-3189P AMPLIFIER	FAR 27-41002-897	820413	ETR	YES NO		
FAILURE MODE-OUT OF TOLERANCE. THE ROLL PROGRAM SLAVING SENSITIVITY WAS REPORTED OUT OF TOLERANCE. FAILURE WAS CONFIRMED. FAILURE COULD HAVE BEEN DUE TO THE FOLLOWING. SLIGHTLY HIGHER THAN NOMINAL 400 CPS 115 VRMS INPUT AT 1AT, AGE 1M6, DIFFERENCES BETWEEN FACTORY AND ETR TEST SETS, ETR 400CPS 115V RMS INPUT VOLTAGE MAY HAVE BEEN LOW.							

GENERAL INICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-ETR HAS BEEN NOTIFIED OF RESULTS OF THIS PAR. THEY WERE REQUESTED TO FOLLOW WARM-UP PROCEDURES AND KEEP INCREASED SURVEILLANCE ON THE 400 CPS 115 V RMS INPUT LEVEL. RELIABILITY CONTROL ENGINEERING WILL REQUEST THE FOLLOWING. REVIEW FACTORY AND ETR TEST SETS FOR INCOMPATIBILITY. MODIFY TEST SETS FOR BETTER VOLTAGE REGULATION ON POWER SUPPLIES. MAINTAIN CLOSER SURVEILLANCE DURING CANISTER CALIBRATION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-80-04-31967 GYRO-THERMOSTAT	PAR 27-45045-5	820410	MTR	YES NO	
FAILURE MODE-ERRATIC OPERATION-MOMENTARY RATE GYRO TEMPERATURE FAILURES OCCURRED DURING A 40 MINUTE HOLD AFTER READ Y FOR COMMIT. ANALYSIS CONFIRMED THE FAILURE. THE FAILURE WAS DUE TO A THERMAL GRADIENT OCCURRING IN THE PACKAGE DURING DPL WHEN THE TEMPERATURE SAFE THERMOSTAT CYCLED OFF BEFORE THE PACKAGE HEATER THERMOSTAT CYCLED ON. THIS CAUSED THE MOMENTARY NO-GO CONDITION.						
CORRECTIVE ACTION- CHANGED THE SETTING OF THE TEMPERATURE SAFE THERMOSTAT FROM 30 DEGREES PLUS OR MINUS 5 DEGREES F TO 20 DEGREES PLUS OR MINUS 5 DEGREES F. THIS WAS ACCOMPLISHED BY ECP 1687, CIC 13052.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AES1-0808/1B-401-00-110	FLIGHT	1100 820409	1-2 15	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. THE GYRO PACKAGE APPEARED TO OPERATE AT LOWER THAN NOMINAL GAIN IN ALL THREE (PI YOH, YAM AND ROLL) CHANNELS FOR REASONS UNKNOWN.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. THE GYRO PACKAGE PRODUCED IMPROPER ANALOG SIGNALS RESULTING IN INADEQUATE PITCH-OVER COMMAND TO THE FILTER-SERVO PACKAGE.						
VEHICLE EFFECT-IMPROPER TRAJECTORY. THE VEHICLE DID NOT PLACE THE SPACE VEHICLE IN THE PROPER CIRCULAR ORBIT DUE TO A HIGHER THAN NOMINAL TRAJECTORY CAUSED BY INADEQUATE PITCH-OVER SIGNALS.						
CORRECTIVE ACTION-RECYCLED GYRO PACKAGES TO FACTORY FOR CONFIDENCE CHECKS AFTER DUAL PROPELLANT LOADING. ADDED GYRO TIGHTENING GAIN CHECKS TO PRECOUNT. REVISED PRECOUNT TO PROVIDE PRECISE ADJUSTMENT OF MISSILE INVERTER VOLTAGE. ADDED TELEMETRY TO MONITOR PROBABLE PROBLEM AREAS. ADDED REQUIREMENT FOR MANUAL EVALUATION OF APACHE PITCH PROGRAM PRINTOUT.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	DAT07/E1-8MO-03-15 HEATER	COMPOSITE-FRG/DPL 27-45045-5	15F 820408	578E	YES 60/C NO	
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE RATE GYRO HEATER TEMPERATURE WAS LOW.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. AUTOPILOT FAIL INDICATION RECEIVED FOR APPROXIMATELY 8 MINUTES.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-UNKNOWN.						

GENERAL ANICS
CONVAIR 1810W

15 JUN 1962

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	DATOT/EL-68N-02-15 HEATER	COMPOSITE-PRO/DPL 27-45049-9	15F 620403	376E-1	YES NO	YES 60/C NO
<p>FAILURE MODE-OUT OF TOLERANCE. RATE GYRO HEATER TEMPERATURE LOW. THE 30 DEGREE THERMO SWITCH WAS OUT OF TOLERANCE.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. AUTOPILOT FAIL INDICATION RECEIVED FOR 2 MINUTES.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3166F THERMOSTAT	FAR 27-04582-1	620404	FACTORY	YES NO	YES STEVENS NO
<p>FAILURE MODE-SHORT ELECTRICAL/. THE ITEM THERMOSTATS WERE REPORTED TO BE SHORTED INTERNALLY DURING BENCH TESTS IN THE MANUFACTURING AREA. THE FAILURES WERE NOT CONFIRMED. THESE ARE LOW TEMPERATURE THERMOSTATS AND ARE NORMALLY CLOSED. THIS MAY HAVE BEEN MISINTERPRETED AS A SHORT CIRCUIT.</p> <p>CORRECTIVE ACTION-MANUFACTURING PERSONNEL WERE NOTIFIED OF THE RESULTS OF THIS ANALYSIS IN AN EFFORT TO PREVENT REJECTION OF ACCEPTABLE ITEMS.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3167F THERMOSTAT	FAR 27-04583-1	620404	FACTORY	YES NO	YES STEVENS NO
<p>FAILURE MODE-SHORT ELECTRICAL/. TWO THERMOSTATS WERE REPORTED TO BE SHORTED INTERNALLY DURING MANUFACTURING BENCH TESTS. FAILURES WERE NOT CONFIRMED. THESE ARE LOW TEMPERATURE THERMOSTATS AND ARE NORMALLY CLOSED. THIS MAY HAVE BEEN MISINTERPRETED AS A SHORT CIRCUIT.</p> <p>CORRECTIVE ACTION-MANUFACTURING PERSONNEL WERE NOTIFIED OF THE RESULTS OF THIS ANALYSIS IN AN EFFORT TO PREVENT REJECTION OF ACCEPTABLE ITEMS.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	DATOT/EL-68N-01-15 GYRO-DISPLACEMENT	COMPOSITE-PRO/DPL 27-45049-808	15F 620403	376E-1	YES NO	YES 60/C NO
<p>FAILURE MODE-FAIL DURING OPERATION. A FLIGHT CONTROL FAIL INDICATOR RED WAS RECEIVED 4 MINUTES 37 SECONDS AFTER THE COMPOSITE WAS STARTED DUE TO A FAULTY VAN DISPLACEMENT GYRO.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION.</p> <p>VEHICLE EFFECT-COMPOSITE ABORTED. FAILURE PREVENTED RECEIPT OF MISSILE READY FOR COMMENT AND CAUSED EXCESSIVE BOOST AS ENGINE VAN DISPLACEMENT.</p>						

GENERAL LINES
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-UNKNOWN.							096774
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3197F CANISTER-O-RING	FAR 27-48045-5	820403	8YC	YES NO		096070
FAILURE MODE-LEAK-THERE WAS A BLOWING LEAK AT THE PRESSURIZATION VALVE. ANALYSIS CONFIRMED THE REPORTED FAILURE. THE FAILURE WAS CAUSED BY A BROKEN O-RING BETWEEN THE VALVE AND THE MOUNTING PLATE. THE O-RING WAS PROBABLY BROKEN BECAUSE OF OVERTORQUING OF THE MOUNTING NUT. WHEN CORRECTIVE ACTION-REVISION E TO MP'S 21-13, DATED 6 FEB. 1963, ADDED A WARNING AGAINST ADJUSTMENT OF THE PRESSURIZATION VALVE FITTING NUT. AMENDMENT (A) TO THE PURGE AND PRESSURIZATION MP'S ADDED A WARNING NOTE REGARDING THE TWO RATE GYRO PACKAGE.							
CORRECTIVE ACTION-REVISION E TO MP'S 21-13, DATED 6 FEB. 1963, ADDED A WARNING AGAINST ADJUSTMENT OF THE PRESSURIZATION VALVE FITTING NUT. AMENDMENT (A) TO THE PURGE AND PRESSURIZATION MP'S ADDED A WARNING NOTE REGARDING THE TWO RATE GYRO PACKAGE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3204-C RATE GYRO	FAR 27-41002-833	820402	ETR	YES ASTRONAUTICS NO 27-41002-833		096053
FAILURE MODE-OUT OF TOLERANCE. PACKAGE FAILED IN THE GYRO LABORATORY AT ETR WHEN THE 2-VOLT RMS PITCH PROGRAM SLAVED THE RATE WAS FOUND TO BE 3 PERCENT ABOVE NOMINAL. TOLERANCE IS PLUS OR MINUS 15 PERCENT.							
CORRECTIVE ACTION-NONE. ANALYSIS WAS NOT PERFORMED DUE TO LACK OF AUTHORIZED FUNDING.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3193F	FAR 27-41002-833	820402	SCHILLIN 6	NO NO		096067
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME-DURING ARMA INTERACTION CHECKS, THE FUSES IN THE COMPLEX 28 VOLT POWER LINE WERE BLOWN WHEN POWER WAS APPLIED. THE GYRO PACKAGE WAS REPLACED AND THE CHECKS WERE SATISFACTORILY COMPLETED. NO PACKAGE FAILURE COULD BE FOUND. THE REPORTED FAILURE WAS MOST PROBABLY CAUSED BY A MALFUNCTION OF THE 400 CPS GENERATOR REPORTED AT SCHILLING AFB, RESULTING IN EXTENSIVE REPAIR OF THE MISSILE HARNESS.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	W6-88-04-3148F CIRCUIT BOARD-FILTER	FAR 27-41002-887	1070 820402	ETR	YES NO		
FAILURE MODE-OPEN ELECTRICAL. DURING AUTOPILOT SYSTEM CHECKOUT, THERE WAS NO SHRD OUTPUT SIGNAL. FAILURE ANALYSIS REVEALED A 2 VOLT DC OUTPUT /8 VDC MINIMUM EXPECTED/. FAILURE CAUSED BY AN INTERMITTENT CONNECTION DUE TO POOR SOLDERING IN THE 27-04948-1 FILTER IN THE SHRD MODULE.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPIL 8TEN-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-THIS FILTER IS NO LONGER USED. A NEW FILTER P/N 27-0488-3 OF IMPROVED QUALITY AND DESIGN IS PRESENTLY USED ON ALL NEW CIRCUITS.						891235
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3129F DISPLACEMENT GYRO WIRING	FAR 7-04250-3	820331	FACTORY	YES	KEARFOOT NO C70-2506-000	897303
FAILURE MODE-DRIFT. GYRO WAS REJECTED DURING CANISTER CHECKOUT-CAUSED BY DISTORTED FLEX LEADS. THE DISTORTION WAS A BEND IN THE LEAD NEAR THE JUNCTION WHERE THE FLEX-LEAD IS SOLDERED TO THE MOUNTING CLIP. DISTORTION MAY RESULT FROM MISHANDLING, TORSIONING THE GYRO FLOAT BEFORE ADEQUATE WARMUP AND FLOW OF THE ALMOST SOLID FLATONATION MATERIAL DURING COOL DOWN. TWO OTHER DISPLACEMENT GYROS ARE INCLUDED IN THIS ANALYSIS.							
	CORRECTIVE ACTION-VENDOR IS INCORPORATING Baffles TO PRECLUDE FAILURE FROM FLOW OF FLATONATION MATERIAL NEAR THE FLEX LEADS. GD/C INCORPORATED NEW HANDLING REQUIREMENTS.						893210
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	RA-98-04-3139F MARNES3	FAR 27-41002-999	820331	ETR	NO	GD/C NO	
FAILURE MODE-FAIL DURING OPERATION. DURING TESTING NO OUTPUT WAS OBTAINED IN THE YAW CHANNEL. MOVEMENT OF THE TABLE CW THEN CCW, THEN CW, MADE THE OUTPUT REAPPEAR. ANALYSIS SHOWED THE CANISTER TO BE SATISFACTORY. RECHECK AT ETR REVEALED A PINCHED CABLE ON THE TEST SET IN WHICH A YAW CONDUCTOR WAS DAMAGED.							
	CORRECTIVE ACTION-DAMAGED TEST EQUIPMENT CABLE REPAIRED.						891243
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3183P GYRO-RATE	FAR 27-04574-3	820329	FACTORY	NO	MINNEAPOLIS-NO NO KEYWELL J83101AE	
FAILURE MODE-OUT OF TOLERANCE. GYRO REPORTEDLY EXHIBITED AN EXCESSIVE OUTPUT. FAILURE WAS NOT CONFIRMED. THE SENSITIVITY OF THE UNIT TENDED TO BE ON THE LOW SIDE OF NOMINAL BUT WAS WITHIN SPECIFICATIONS.							
	CORRECTIVE ACTION-NO CORRECTIVE ACTION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3178P CIRCUIT BOARD-WIRING	FAR 27-41002-988	820323	PWR	YES	82 NO	
FAILURE MODE-SHORT (ELECT) THE GYRO PACKAGE WAS REJECTED WHEN NO-60 WAS RECEIVED DURING MARCHE CHECKOUT. FAILURE ANALYSIS CONFIRMED THE FAILURE. ANALYSIS REVEALED A SHORT CIRCUIT FROM THE TRANSISTOR CASE TAB TO AN INTERCONNECTING WIRE AT PLUS 80 VDC IN THE 848D LOGIC MODULE.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
							963916
	<p>CORRECTIVE ACTION-A -3 CONFIGURATION OF THE 3MRD LOGIC MODUL7 HAS BEEN RELEASED WHEREIN THE TRANSISTOR IS ROTATED A PROXIMATELY FIVE DEGREES AND IS WRAPPED WITH NYLAR TAPE TO PREVENT POSSIBLE SHORT CIRCUITS. ALL -3 3MRD MODULES ON THE 3MRD HAVE BEEN REMOVED AND SCRAPPED ON 8-2-62. THE -8 CONFIGURATION WENT INTO PRODUCTION IN MARCH 1962.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3164F GYRO-DISPLACEMENT	FAR 7-04230-1	620322	FACTORY	YES	REARFOOT NO 72306-2A	991244
	<p>FAILURE MODE-STRUCTURAL. DURING FACTORY TESTING, THE GYRO DEVELOPED EXCESSIVE BEARING NOISE. THE FAILURE WAS CONFIRMED. A FUNCTIONAL TEST REVEALED THAT THE SPIN MOTOR WOULD NOT ATTAIN SYNCHRONOUS SPEED /24,000 RPM/. DISASSEMBLY REVEALED EVIDENCE OF LUBRICANT DETEIORATION AND OVER HEATING. THE PHENOLIC BEARING RETAINER WAS CRACKED AND POWDERED. FAILURE WAS DUE TO OVERHEATING AND DEPLETION OF LUBRICANT.</p>						
	<p>CORRECTIVE ACTION-THE VENDOR HAS RECENTLY INSTITUTED A MOTOR RELIABILITY PROGRAM TO STUDY AND DETERMINE CORRECTIVE ACTION ON SPIN MOTOR FAILURES. THE VENDOR IS SUPPLYING A LIMITED QUANTITY OF GYROS WITH A NEW SPIN MOTOR BEARING LUBRICANT THAT MAY INCREASE BEARING LIFE AND REDUCE FAILURES.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3162F GYRO-RATE	FAR 27-43045-3	620321	SCHILLIN	YES NO		996066
	<p>FAILURE MODE-CONTAMINATION-DURING PERFORMANCE OF NACPOE CHECKOUT PROCEDURE 27-98451-3, A NO-60 WAS RECEIVED ON CARD 303 INDICATING THAT THE GYRO SPEED (3MRD) WAS OUT OF TOLERANCE. ANALYSIS CONFIRMED THE FAILURE. THERE WAS SEVERE CONTAMINATION OF THE PITCH RATE GYRO BY LIQUID MERCURY AND THE YAW RATE GYRO WAS LEAKING DAMPING FLUID FROM THE SEALIN G PLUS.</p>						
	<p>CORRECTIVE ACTION-REMOVED THE MERCURY MANOMETERS FROM THE FACTORY AND PRODUCT SUPPORT LEAK TEST BENCHES.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-022F GYRO PACKAGE PEATER	FAR 55-41002-009	1040 620321	AMR	YES NO		992963
	<p>FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED WHEN THE FINE HEATER VOLTAGE CYCLED CONTINUOUSLY BETWEEN 20 AND 30 VOLTS RMS. FAILURE ATTRIBUTED TO IMPROPER INSTALLATION OF THE COMPENSATION RING, RESULTING IN AN INTERMITTENT CONNECTION.</p>						
	<p>CORRECTIVE ACTION-CONSTRUCTION AND INSTALLATION TECHNIQUES WERE IMPROVED IN APRIL 1962 WHICH WILL ALLEVIATE THIS PROBLEM.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI DIF	OTH DIF	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3181F CIRCUIT BOARD	FAR 27-43230-5	820320	SAN DIEG	YES	NO	60/C	093919
FAILURE MODE-SHORT (ELECT). THE THIRD LOGIC NETWORK FAILED DURING FUNCTIONAL TESTS. POTTED MODULE P/N 27-43187-3 WAS REPORTED TO BE BURNED. THE FAILURE WAS CONFIRMED. THE FAILURE WAS CAUSED BY A SHORT CIRCUIT BETWEEN PIN 5 AND THE 1 TRANSISTOR CASE WITHIN THE MODULE.								
CORRECTIVE ACTION-MODULES PRESENTLY BEING MANUFACTURED HAVE BEEN REDESIGNED TO PRECLUDE THIS TYPE OF FAILURE. THE 1 INDEXING TAB ON THE TRANSISTOR CASE HAS BEEN MOVED TO PROVIDE ADEQUATE CLEARANCE BETWEEN THE TRANSISTOR CASE AND PIN 5. A NYLAR TAPE IS USED TO PROVIDE ADDITIONAL INSULATION. ALL REMAINING STOCK OF OLD MODULES WERE SCRAPPED.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3183F CONNECTOR	FAR 27-41356-821	820320	FACTORY	YES	NO		093117
FAILURE MODE-STRUCTURAL. A DISTORTED OUTPUT FROM THE GYROSCOPES WAS REPORTED. FAILURE ANALYSIS CONFIRMED THE FAILURE E. THE FAILURE WAS DUE TO A BROKEN 2 WIRE ADAPTOR. THIS TYPE OF ADAPTOR READILY BREAKS, OPENING THE CIRCUIT, WHICH RESULTS IN ANY MANNER.								
CORRECTIVE ACTION-THE 2 WIRE ADAPTOR WAS ELIMINATED ON ALL HARNESS TRAYS CONSTRUCTED AFTER 10-6-61, PER MAP 7801 CI C 11932-70-1. NO FURTHER ACTION AT THIS TIME.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	16-99-04-3110F RATE GYRO	FAR 27-04574-3	PPT 820319	80	YES	MINI. NONE	MINI. NONE	093379
FAILURE MODE-OUT OF TOLERANCE-CAUSED BY INTERNAL MASS SHIFTING.								
CORRECTIVE ACTION-CONVAIR HAS AGREED TO REVIEW AND IMPROVE CLEANING, CEMENTING AND SOLDERING TECHNIQUES TO PRECLUDE RECURRENCE OF THIS TYPE FAILURE.								
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3183F AMPLIFIER-RESISTOR	FAR 27-41002-803	820319	SCHILLIN	NO	NO		093919
FAILURE MODE-ELECTRICAL OPEN-A SERIES OF NO-GOS WERE RECEIVED DURING MAPCHE CHECKOUT. ANALYSIS REVEALED LOW GAIN OF THE YAW GYRO SIGNAL AMPLIFIER. THE FAILURE WAS CAUSED BY RESISTOR R-29 BEING OPEN-CIRCUITED. THE RESISTOR FAILURE WAS CAUSED BY A MAPCHE TEST VOLTAGE ERROR.								
CORRECTIVE ACTION-UNKNOWN.								

GENERAL - AMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER	VEHICLE	SITE	PRI	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	DATE	TIME	OTH	VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3138F AMPLIFIER-TRANSISTOR	620315	FACTORY	YES NO	
	FAR 27-41378-809				
FAILURE MODE-FAIL DURING OPERATION-THE ITEM FAILED DURING A CANISTER ACCEPTANCE TEST WHEN THE TORQUE AMPLIFIER BECAME INOPERATIVE. UPON REMOVAL FROM THE CANISTER THE FOLLOWING DISCREPANCIES WERE NOTED- T-1 AND R-19 BURNED, TRANSISTORS Q5 AND Q6 WERE INOPERATIVE (TYPE 2N339).					
CORRECTIVE ACTION-AMPLIFIER REDESIGNED INCORPORATING 2N498 TRANSISTORS AND AN IMPROVED HEAT SINK.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-023F DISPLACEMENT GYRO-WIRE	620315	AMR	YES NO	YES KEARFOTT NO
	FAR 55-41002-809				
FAILURE MODE-OPEN, ELECTRICAL. UNIT REJECTED FOR EXHIBITING A HIGH DRIFT RATE. FAILURE ATTRIBUTED TO A BROKEN PHASE B FLEX LEAD WHICH WAS ALSO BURNED THROUGH AT THE CASE GROUND POST. FIVE SIMILAR CASES WERE REPORTED ON FAR CT-98-04-047F, -056F, -057F, -062F, -074.					
CORRECTIVE ACTION-GO/C REVISED HANDLING PROCEDURES DURING WARMUP AND COOL-DOWN. KEARFOTT INCORPORATED BAFFLES IN THE GYRO NEAR THE FLEXLEADS.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3206-F BARD	620315	FACTORY	YES NO	YES GO/C NO
	FAR 27-43229-3				
FAILURE MODE-OUT OF TOLERANCE. FAILED EOP 330.483.1 AT MODULE LEVEL DURING FACTORY CHECKOUT. ACTUAL MODE OF FAILURE WAS NOT RECORDED. FAILURE WAS NOT CONFIRMED. IR RECORDS INDICATE UNIT MAY HAVE BEEN REPAIRED PRIOR TO FAILURE ANALYSIS.					
CORRECTIVE ACTION-NONE, FAILURE WAS NOT CONFIRMED.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3177F AMPLIFIER-TRANSISTOR	620315	ALTUS	YES NO	
	FAR 27-41002-855				
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. NO YAW DISPLACEMENT GYRO NULLING. ANALYSIS VERIFIED THE FAILURE. RESISTOR R22 IN THE EMITTER OF TRANSISTOR Q5 (2N339) WAS SEVERELY BURNED. THE TRANSISTOR LEADS WERE DARKENED AND THE DRIVER TRANSFORMER, 27-04180-9, WAS CRACKED, INDICATING OVERHEATING. THE FAILURE IS RELATED TO INADEQUATE HEAT SINKING OF THE 2N339 TRANSISTOR.					
CORRECTIVE ACTION-RESISTOR 2N498 WAS REPLACED TRANSISTOR 2N339 AND AN IMPROVED HEAT SINK DESIGN HAS BEEN INCORPORATED.					

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	ARI41-0-1-128/PC-4CO-04-128	COMPOSITE-FACTORY	128D 820310	FACTORY	NO	50/C NO
<p>FAILURE MODE-FAIL DURING OPERATION. NUMEROUS ROLL TORQUING AND BIAS FUNCTIONS WERE UNSATISFACTORY DURING THE TEST.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. NUMEROUS ROLL TORQUING AND BIAS FUNCTIONS WERE UNSATISFACTORY.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-THE PROGRAMMER TEST TAPES WERE REPLACED. CONDITION OCCURRED ON POST-COMPOSITE TESTING. THE PITCH BUZZOUT AMPLIFIER WAS FOUND TO BE ADJUSTED FOR GREATER THAN UNIT GAIN RESULTING IN A CONSTANT BIAS SIGNAL OUTPUT TO THE GYRO. THE PITCH BUZZOUT AMPLIFIER WAS ADJUSTED FOR THE PROPER GAIN.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AAR2-0042/P8-4CO-03-F1 DISPLACEMENT GYRO	COMPOSITE-J FACT	104D 820309	36	YES	50/C NO
<p>FAILURE MODE-DRIFT. THE YAW DISPLACEMENT GYRO INDICATED EXCESSIVE DRIFT DURING THE PLUS COUNT.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-REMOVE CANISTER AND REPLACE. (FAR 3P-98-04-023)</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-JA-04-3128F DISPLACEMENT GYRO CANISTER	FAR 7-04250-1	820307	FACTORY	YES	KEARFOY NO 12508-2A
<p>FAILURE MODE-STRUCTURAL-INSPECTION SHOWED A DENTED END BELL, PROBABLY CAUSED BY OVERPRESSURIZATION OF THE GYRO CANISTER</p> <p>CORRECTIVE ACTION-A FIBERGLASS AND PLASTIC CAP HAS BEEN PROVIDED TO PREVENT DAMAGE TO THE END BELL.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9M-04-3171F CIRCUIT BOARD	FAR 27-41002-955	29F 820307	6	SCHELLIN	YES NO
<p>FAILURE MODE-FAIL DURING OPERATION. DURING MAPCHE CHECKOUT A NO-60 WAS RECEIVED ON CARD 323 WHICH CHECKS FOR PITCH DISPLACEMENT GYRO TORQUING. FAILURE NOT CONFIRMED, HOWEVER, SOLDER CONTAMINATION WAS PRESENT. FAILURE CAUSED BY 71/ SHORT CIRCUIT CAUSED BY THE SOLDER OR 72/ TEST EQUIPMENT MALFUNCTION. THE SOLDER CONTAMINATION WAS INTRODUCED DURING CALIBRATION RESISTOR INSTALLATION.</p> <p>CORRECTIVE ACTION-60/C HAS INITIATED CORRECTIVE ACTION BY INSPECTING ALL CIRCUIT BOARDS FOR CONTAMINATION AFTER CAL</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
LIBRATION RESISTORS ARE SOLDERED INTO PLACE, SINCE FEBRUARY 1962.							091229
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3137P GYRO-RATE	FAR 27-41703-809	1120 620303	WTR	YES	MINNEAPOLIS, M NO ONEYMELL	092047
FAILURE MODE-OPEN (ELECTRICAL). DURING APACHE TESTS NO-GOS WERE RECEIVED FOR RATE GYRO TORQUING. FAILURE CONFIRMED. THE PITCH RATE GYRO COULD NOT BE TORQUED. THE FAILURE WAS DUE TO AN OPEN CIRCUIT IN THE PITCH RATE GYRO TORQUE WINDING. THIS WINDING IS MADE FOR THE VENDOR BY ELECTRO-PRODUCTS.							
CORRECTIVE ACTION-UNKNOWN. THE VENDOR, MINNEAPOLIS HONEYWELL, HAS AGREED TO SURVEY THE TORQUE WINDINGS RECEIVED FROM ELECTRO-PRODUCTS AND OBTAIN ANY CORRECTIVE ACTION NECESSARY TO PREVENT FUTURE FAILURES OF THIS TYPE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3189P GYRO-DISPLACEMENT	FAR 27-41002-881	1120 620303	WTR	YES	KEARFOOT NO	091239
FAILURE MODE-STRUCTURAL. DURING MISSILE CHECKOUT, THERE WAS A REPORTED ABSENCE OF THE 28 VDC FROM THE SPIN MOTOR DE VECTOR /SHRD/. THE FAILURE WAS DUE TO A BLOW RUNNING YAW DISPLACEMENT GYRO SPIN MOTOR CAUSED BY DEPLETION OF THE SPI N MOTOR LUBRICANT.							
CORRECTIVE ACTION-VENDOR STUDYING SPIN MOTOR FAILURES TO DETERMINE EXACT CAUSES AND TO ESTABLISH CORRECTIVE MEASURE S. A NEW BEARING LUBRICANT IS UNDER INVESTIGATION AND A LIMITED NUMBER OF NEW GYROS ARE PRESENTLY BEING MANUFACTURED INCORPORATING THE NEW LUBRICANT.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-013P	FAR 55-41002-809	620303	ETR	NO	NO	092962
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR PITCH BLAVING SENSITIVITY BEING ABOVE NOMINAL. FAILURE ATTRIBUTED TO TEST EQUIPMENT DISCREPANCY.							
CORRECTIVE ACTION-NONE. NO FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3123P DISPLACEMENT GYRO	FAR 7-04830-8	620301	FACTORY	YES	KEARFOOT NO C70-2306-000	097742
FAILURE MODE-CONTAMINATION. 2 DISPLACEMENT GYROS FAILED BY STICKTION-POSSIBLY DUE TO BINDING CAUSED BY FRICTION OR C ONTAMINATION.							
CORRECTIVE ACTION-VENDOR WAS NOTIFIED. A GYRO WILL BE DESIGNED USING A NEW TYPE OF BEARING.							

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GENERAL MANICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3183F GYRO-DISPLACEMENT	FAR 7-04250-3	620301	FACTORY	YES NO	YES KEARFOTT NO C70-2508-000
FAILURE MODE-OUT OF TOLERANCE. DURING FUNCTIONAL TESTS THE GYRO EXHIBITED STICTION. FAILURE ANALYSIS DID NOT CONFIRM THE REPORTED FAILURE. THE GYRO WAS FUNCTIONALLY TESTED AND FOUND TO BE IN TOLERANCE FOR ALL PARAMETERS. NO CAUSE FOR THE REPORTED STICTION FAILURE WAS FOUND IN TESTING OR TEARDOWN.						
CORRECTIVE ACTION-UNKNOWN. THE HEATER GIMBAL ASSEMBLY WAS RETURNED TO THE VENDOR FOR HIS ANALYSIS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3186C CIRCUIT BOARD	FAR 27-41486-3	620223	FACTORY	YES NO	YES GO/C NO
FAILURE MODE-ERRATIC OPERATION. THE CIRCUIT BOARD FAILED DURING FACTORY TESTING WHEN AN INTERMITTENT OUTPUT WAS OBSERVED. FAILURE WAS NOT CONFIRMED. A CHECK OF FACTORY RECORDS REVEALED THAT THE PART HAD BEEN REPAIRED PRIOR TO SUBMITTAL TO FAILURE ANALYSIS.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3134F GYRO	FAR 7-04250-3	620222	FACTORY	YES NO	YES NO
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. A SPIN MOTOR FAILED TO ATTAIN SYNCHRONOUS SPEED. ANALYSIS CONFIRMED THE FAILURE WHICH WAS CAUSED BY AN OPEN-CIRCUIT IN THE A PHASE OF THE STATOR WINDINGS PROBABLY DUE TO WINDING INSULATION BREAKDOWN RESULTING ARCING WHICH MELTED THE WIRE.						
CORRECTIVE ACTION-FAULTY STATOR WINDING WAS SHOWN TO THE VENDOR. VENDOR AGREED TO INCREASE HIS QUALITY CONTROL AND SURVEILLANCE OF THIS PART.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3135F GYRO-DISPLACEMENT	FAR 27-41002-991	112D 620219	WTR	YES NO	YES KEARFOTT NO
FAILURE MODE-CONTAMINATION. DURING APACHE TESTS NO-608 WERE RECEIVED INDICATING STICTION IN A GYRO. FAILURE CONFIRMED. IN ADDITION TO STICTION, FURTHER TESTING REVEALED ERRATIC TORQUING LINEARITY. DISASSEMBLY OF THE GYRO REVEALED THAT A SMALL PARTICLE OF SOLDER CONTAMINATION CAUSED THE STICTION. TWO FLEX LEADS FOR SPIN MOTOR POWER WERE DISTORTED AND WOULD CAUSE HIGH DRIFT.						
CORRECTIVE ACTION-THE VENDOR HAS BEEN NOTIFIED AND HE HAS STATED THAT ALL EFFORTS ARE BEING MADE TO PREVENT STICTION. THE FLEX LEAD PROBLEM HAS RESULTED IN REDESIGN OF GYRO8 TO CONTROL FLEX LEAD FLOTATION MATERIAL FLOW AND PREPARATION.						

GENERAL - AMICS
CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI JTH	VENDOR NAME VENDOR PART NO	
TOW OF NEW HANDLING REQUIREMENTS.							092043
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3199F GYRO-DISPLACEMENT	FAR 7-04290-3	020216	SAN DIEG	YES	KEARFOIT NO C70-2306-000	094072
FAILURE MODE-STRUCTURAL-THE RATE-INTEGRATING GYRO SPIN MOTOR WOULD INTERMITTENTLY GO OUT OF SYNCHRONISM. THE FAILURE WAS CONFIRMED. IT WAS CONCLUDED FROM THE FAILURE ANALYSIS THAT THE FAILURE WAS DUE TO LOSS OF SPIN MOTOR BEARING PRELOAD. THE LOSS OF PRELOAD WAS DUE TO A MECHANICAL SHOCK RECEIVED DURING HANDLING.							
CORRECTIVE ACTION-UNKNOWN.							095000
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3134F CIRCUIT BOARD	FAR 27-41978-803	020212-8	FACTORY	NO		
FAILURE MODE-OUT OF TOLERANCE. OUTPUT DISTORTION WAS REPORTED. FAILURE NOT CONFIRMED. A CHECK WITH FACTORY PERSONNEL REVEALED THAT THE TEST EQUIPMENT HAD BEEN MALFUNCTIONING AND THAT THIS COULD HAVE CAUSED THE FAILURES.							
CORRECTIVE ACTION-TEST EQUIPMENT REPAIRED.							091234
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3130F CANISTER-VALVE-CHARGE	FAR 27-43043-3	IF	STANMORE	YES		
FAILURE MODE-LEAK-EXTERNAL. CANISTER WAS OBSERVED TO BE LEAKING GHE THROUGH THE SCHRAEDER PNEUMATIC VALVE. THE PART WAS TESTED IN FAILURE ANALYSIS 15 DAYS AFTER THE ORIGINAL FAILURE. THE CANISTER STILL HAD 3 PSIG PRESSURIZATION. REP REASSURIZATION TO 14 PSIG AND TESTING FOR LEAKAGE FAILED TO CONFIRM THE FAILURE.							
CORRECTIVE ACTION-UNKNOWN.							091316
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3134F AMPLIFIER-MAGNETIC, P/N1C7C-1.	FAR 27-41002-833	7F	ETR	YES		
FAILURE MODE-ELECTRICAL OPEN. THE ROLL DISPLACEMENT FINE HEATER VOLTAGE REPORTEDLY FLUCTUATED BETWEEN 0 AND 119 VOLTS RMS. THE FAILURE WAS CONFIRMED. TROUBLESHOOTING REVEALED THAT THE MAGNETIC AMPLIFIER CONTROL UNIT P/N TC7C-1 WAS DEFECTIVE. THE MAGNETIC AMPLIFIER COULD NOT BE DEPOTTED. THE MOST PROBABLE CAUSE OF FAILURE IS AN OPEN WINDING WITHIN THE AMPLIFIER.							
CORRECTIVE ACTION-NO RECOMMENDED ACTION BECAUSE EXACT CAUSE OF FAILURE COULD NOT BE DETERMINED.							

GENERAL DYNAMICS
CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3207-F RATE GYRO	FAR 27-04874-3	820204	FACTORY	YES	MINN-HOETMELL NO JR3101A2	090055
FAILURE MODE-OUT OF TOLERANCE. DURING BENCH TEST THE UNIT EXHIBITED STICKTION.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3181F GYRO-DISPLACEMENT	FAR 7-04250-1	820131	FACTORY	YES	REARFOOT NO T2506-2A	091247
FAILURE MODE-OUT OF TOLERANCE. THE GYRO EXHIBITED STICKTION DURING A FUNCTIONAL TEST IN THE FACTORY. THE FAILURE WAS NOT CONFIRMED. DISASSEMBLY OF THE GYRO WAS NOT DONE AS THIS TYPE OF GYRO IS NO LONGER MANUFACTURED.							
CORRECTIVE ACTION-THE VENDOR HAS STATED THAT ALL EFFORTS ARE MADE TO KEEP STICKTION AT A LOW LEVEL IN CURRENT PRODUCTION OF THE CTD-2508-000 GYRO WHICH REPLACED THE T2506-2A GYRO. THE VENDOR IS BUILDING A GYRO INCORPORATING A NEW PI NOT AND JEWEL BEARING.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-009F AMPLIFIER	FAR 55-41002-805	820130	AMR	YES		092960
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED WHEN IT WAS NOTED THE MAXIMUM ROLL SLAVING RATE WAS VERY SLOW WITH A 6 VOLT INPUT. FAILURE WAS ATTRIBUTED TO A BURNED RESISTOR AND TRANSISTOR AND, A DAMAGED TRANSFORMER. THIS WAS TERMED A THERMAL RUNAWAY.							
CORRECTIVE ACTION-THE TORQUE AND SIGNAL AMPLIFIERS WERE REDESIGNED, INCLUDING DIFFERENT TRANSISTORS AND IMPROVED HEAT SINKS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	RA-98-04-2075-F AMPLIFIER	FAR 27-41002-803	121D 820129	ETR	NO	NO 50/C	094218
FAILURE MODE-FAIL DURING OPERATION. ZERO OUTPUT FROM YAW SIGNAL AMPLIFIER. FAILURE PROBABLY DUE TO MISAPPLICATION OF 115 VAC 400 CPS TO THE OUTPUT OF THE AMPLIFIER PROBABLY BY HUMAN ERROR.							
CORRECTIVE ACTION-UNKNOWN.							

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 AIRCRAFT
 CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3087-F GYRO-DISPLACEMENT	FAR 27-41002-893	7F 820123	ETR	NO	KEARFOFF	884743
FAILURE MODE-OUT OF TOLERANCE. UNIT EXHIBITED OUT OF TOLERANCE PITCH PROGRAM SLAVING RATE. FAILURE NOT CONFIRMED. PROBABLE CAUSE WAS SITE CHECKOUT EQUIPMENT ERROR.							
CORRECTIVE ACTION-NEW CHECKOUT EQUIPMENT INSTALLED AT SITE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	M6-98-04-3094-F GYRO-DISPLACEMENT-BEARING	FAR 27-41002-898	109D 820113	ETR	YES	KEARFOFF NO CTO	884784
FAILURE MODE-FAIL DURING OPERATION-ARMED LIGHT INDICATED YAW DISPLACEMENT GYRO WAS BELOW SPEED-FAILURE CONFIRMED DUE TO BREAKDOWN OF ONE OF THE SPIN MOTOR BEARINGS.							
CORRECTIVE ACTION-VENDOR STARTED USING NEW TYPE OF LUBRICANT IN GYRO BEARINGS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3078-F AMPLIFIER	FAR 27-41002-883	40E 820113	ETR	NO	60/C NO	884816
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE-UNIT EXHIBITED A PITCH SLAVING VALUE OF 0.378 DEGREES/VOLT/SEC MAX ALLOWABLE IS 0.375. NO MALFUNCTION OCCURRED IN THE GYRO CANISTER. THE FAILURE WAS DUE TO TEST SET MALFUNCTION DURING FACTORY CALIBRATION.							
CORRECTIVE ACTION-TEST EQUIPMENT REPAIRED AND REVALIDATED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	M6-98-04-3083 GYRO-RATE-WIRING	FAR 27-04974-3	820112	FACTORY	YES	HONEYWELL NO	885061
FAILURE MODE-SHORT (ELECT). INTERMITTENT TORQUING RATE DURING CHECKOUT. TORQUER LEAD WIRE FOUND ELECTRICALLY SHORTED TO GYRO CASE.							
CORRECTIVE ACTION-VENDOR REDESIGNED WIRING BY TYING A KNOT IN THE SLEEVING AT A DISTANCE OF 1/2 TO 3/8 INCH FROM THE TERMINAL.							

GENERAL DYNAMICS
CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3082-F GYRO-DISPLACEMENT	PAR 27-41003-989	980111	ETR	YES NO	YES NEARPORT	884613
FAILURE MODE-FAIL DURING OPERATION-ROLL GYRO REJECTED FOR STICKION. FAILURE WAS CONFIRMED. CAUSE OF FAILURE COULD NOT BE DETERMINED.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	H6-98-04-3071F GYRO-RATE-BEARING	PAR 27-41008-858	1090 920109	ETR	YES NO	YES HONEYWELL	884220
FAILURE MODE-STRUCTURAL. BARD NO-60 INDICATED. PITCH GYRO SPIN MOTOR FAILURE DUE TO BURNED AND PITTED BEARING.							
CORRECTIVE ACTION-UNKNOWN. VENDOR NOTIFIED AND REQUESTED TO PROVIDE BETTER QUALITY CONTROL TO INSURE GYRO SPIN MOTOR BEARINGS ARE PROPERLY LUBRICATED. VENDOR CONCLUDED THAT FAILURE IS OF RANDOM TYPE.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A99-04-3082-F AMPLIFIER	PAR 27-41876-3	920103	FACTORY	NO NO		884739
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE-THREE PITCH SIGNAL AMPLIFIERS WERE REJECTED IN CHECKOUT FOR OUTPUT OUT OF TOLERANCE-FUNCTIONAL TESTS DID NOT CONFIRM FAILURE-REPORTED FAILURES WERE DUE TO FAULTY SLIP RING ON FACTORY TEST EQUIPMENT.							
CORRECTIVE ACTION-SLIP RING ON FACTORY TEST EQUIPMENT WAS REPAIRED AND VALIDATED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3131F GYRO-RATE	PAR 27-35045-3	920103	ETR	YES NO		881233
FAILURE MODE-OPEN ELECTRICAL. DURING TESTS THE PITCH RATE GYRO OUTPUT WAS OBSERVED TO BE EXCESSIVE. THE VALUE OBSERVED WAS 700 MILLIVOLTS. MAXIMUM ALLOWABLE IS 250 MILLIVOLTS. FAILURE ANALYSIS REVEALED A BROKEN WIRE IN THE SIGNAL GENERATOR SECONDARY NULL COMPENSATING WINDING.							
CORRECTIVE ACTION-THE VENDOR WAS NOTIFIED OF THIS PROBLEM AND HAS AGREED TO INSURE A MORE ADEQUATE QUALITY CONTROL PROGRAM.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-98-04-3048 AMPLIFIER-RESISTOR	FAR 27-41002-859	1090 611228	ETR	YES NO		884137
FAILURE MODE-ELECTRICAL OPEN. REJECTED DURING CHECKOUT WHEN YAW DISPLACEMENT GYRO COULD NOT BE TORQUED. FAILURE DUE TO INTERMITTENTLY OPEN RESISTOR.							
CORRECTIVE ACTION-FOUR NEW FORMING TOOLS FURNISHED PRODUCTION TO FORM RESISTOR LEADS WITHOUT STRAIN DURING ASSEMBLY. FACTORY ALSO PROVIDED WITH AUTOFORMER (TYPE UFRLL).							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A681-1273/LZ-401-00-114	FLIGHT	1140 611222	WTR 92	YES NO		884848
FAILURE MODE-ERRATIC OPERATION. A BUILDUP OF THE MISSILE FIRST LATERAL BENDING MODE AT 3.0 TO 4.0 CPS WAS ENCOUNTERED DURING THE LATTER 40 SECONDS OF BOOSTER PHASE. NONE OF THE PREVIOUS TEN ATLAS/ASENA FLIGHTS HAD A BENDING MODE BUILDUP. RATE GYROS LOCATED AT STATION 875.							
SYSTEM EFFECT-NONE. ALL FLIGHT CONTROL FUNCTIONS OPERATED NORMALLY.							
VEHICLE EFFECT-NONE. FLIGHT CONTROL SYSTEM MAINTAINED STABILITY.							
CORRECTIVE ACTION-60/C STUDIES INDICATED THAT THE LOCATION OF THE RATE GYROS AT STATION 875 WAS VERY NEAR THE FIRST BENDING ANTINODE AT THIS TIME OF FLIGHT AND THAT THE PITCH CHANNEL SHOULD, THEREFORE, BE RELATIVELY STABLE, HOWEVER, SUBSEQUENT ATLAS/ASENA FLIGHT RESULTS EVENTUALLY LED TO RELOCATION OF RATE GYROS TO STATION 475 FOR INCREASED BENDING MODE STABILITY.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H6-98-04-3043 AMPLIFIER	FAR 27-41002-859	1090 611220	ETR	YES NO		884140
FAILURE MODE- ERRATIC OPERATION-YAW SLAVING OUTPUT HIGH-PITCH SLAVING OUTPUT ERRATIC BUT NOT CONFIRMED AT 80.							
CORRECTIVE ACTION-CALIBRATION PROCEDURE FOR THE YAW AMPLIFIER WAS REVIEWED AND CORRECTED. ETR ADVISED OF PROCEDURE SPECIFICATIONS WHICH LIMIT TORQUING TIME ON GYROS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3053 GYRO-DISPLACEMENT	FAR 27-41002-859	611218	ETR	YES NO		885088
FAILURE MODE-OPEN(ELECT) PITCH DISPLACEMENT GYRO COULD NOT BE TORQUED. PIN 11 OF PITCH GYRO FOUND ERRONEOUSLY WIRED TO PIN 17 ON TERMINAL BOARD UNDER DISPLACEMENT GROUP.							
CORRECTIVE ACTION-TEST SETS IN FACTORY MODIFIED TO ETR CONFIGURATION.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3038-F BMRD-CIRCUIT BOARD	FAR 27-48208-801	82E 811218	BYCAMORE	YES NO	YES 60/C	993868
FAILURE MODE-OUT OF TOLERANCE. LOW BMRD OUTPUT VOLTAGE RECORDED DURING CHECKOUT. CAUSE OF FAILURE NOT ISOLATED.							
CORRECTIVE ACTION-UNKNOWN. DESTRUCTION OF THE UNIT DURING FAILURE ANALYSIS PRECLUDED ISOLATING THE CAUSE OF FAILURE							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	HC-A9-04-3082 GYRO-RATE	FAR 27-04574-3	811217	FACTORY	YES NO	YES HONEYWELL	993868
FAILURE MODE-FAIL DURING OPERATION-LOW BMRD OUTPUT VOLTAGE CAUSED BY DEMAGNETIZATION OF THE BMRD MAGNET-NO CAUSE FOR DEMAGNETIZATION WAS DETERMINED.							
CORRECTIVE ACTION-UNKNOWN. INVESTIGATION OF CAUSE OF DEMAGNETIZATION OF BMRD MAGNET TO BE CONTINUED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-90-04-3100-F CIRCUIT BOARD	FAR 27-41002-855	84E 811218	WTR	YES NO	YES 60/C	993867
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- DURING MARCHE TEST BMRD OUTPUT WAS OK. FAILURE CONFIRMED IN SELF-CHECK MODULE. NO CAUSE OF MODULE FAILURE COULD BE FOUND DUE TO DESTRUCTION OF COMPONENTS DURING DEPOTTING.							
CORRECTIVE ACTION-60/C IS CONTINUING INVESTIGATION OF SELF CHECK MODULE PROBLEM.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A99-04-3095-F AMPLIFIER	FAR 27-51379-803	811218	FACTORY	NO NO	YES 60/C	994763
FAILURE MODE-ERRATIC OPERATION-SIGNAL AMPLIFIER EXHIBITED INTERMITTENT RATE GAIN OUTPUT. FAILURE COULD NOT BE CONFIRMED IN UNIT. REPORTED FAILURE PROBABLY DUE TO FACTORY TEST EQUIPMENT MALFUNCTION.							
CORRECTIVE ACTION-FACTORY AUTOPLOT TEST SET REPAIRED AND VALIDATED.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3072-F GYRO-RATE	FAR 27-48049-5	38E 811214	ETR	YES NO	YES HONEYWELL	
FAILURE MODE-FAIL DURING OPERATION. UNIT FAILED TO GIVE PROPER OUTPUT WHEN TORQUING THE PITCH GYRO DUE TO LACK OF A DEQUATE FEED THRU TERMINAL AND ARCING FROM TERMINAL TO ELECTRICAL GROUND.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
						894219
	CORRECTIVE ACTION-VENDOR INITIATED REDESIGN BY INCORPORATING A LARGER FEED-THRU TERMINAL ON ALL UNITS DELIVERED AFT ER FEB 1962.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3032 GYRO-RATE-SWRD	FAR 27-43049-S	64E 611214	WTR	YES NO	YES HONEYWELL
	FAILURE MODE-SHORT (ELECT)-NO OUTPUT FROM YAW SWRD CAUSED BY SHORT CIRCUIT OF THE OUTPUT TERMINAL BY MISPLACED RESI STOR LEAD.					894219
	CORRECTIVE ACTION-INSPECTION PERSONNEL INSTRUCTED TO ENSURE THE CLEARANCE OF CALIBRATOR RESISTORS.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3070-F GYRO-DISPLACEMENT-MERING	FAR 27-41002-855	SF 611212	ETR	YES NO	YES KEARFOY
	FAILURE MODE-OPEN (ELECT). DURING CHECKOUT SWRD NO-60 OCCURRED WHEN THE PITCH GYRO WAS TORQUED TO THE STOP IN THE M EGATIVE DIRECTION. SPIN MOTOR PHASE A FLEXLEAD BROKE AND OPEN CIRCUITED SPIN MOTOR POWER.					894221
	CORRECTIVE ACTION-UNKNOWN. INVESTIGATION OF CAUSE OF BROKEN FLEXLEAD TO BE CONTINUED BY VENDOR AND 60/C.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3069-F GYRO-DISPLACEMENT	FAR 27-41002-855	36E 611212	ETR	YES NO	YES KEARFOY
	FAILURE MODE-CONTAMINATION. STICKION (INTERMITTENT MECHANICAL BINDING) INDICATED. GYRO CONTAINED TWO SMALL PARTICLE S OF FLAKED PLATING MATERIAL.					894222
	CORRECTIVE ACTION-UNKNOWN. INVESTIGATION OF CAUSE OF STICKION TO BE CONTINUED BY VENDOR AND 60/C.					
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3047 AMPLIFIER	FAR 27-43502-801	611212	SYCAMORE	NO NO	
	FAILURE MODE-ERRATIC OPERATION-HIGH FREQUENCY OSCILLATION SUPERIMPOSED ON THE NORMAL 400 CPS OUTPUT OF YAW GYRO DUE TO CAPACITIVE LOADING BY THE LANDLINE CIRCUITS.					894138
	CORRECTIVE ACTION-UNKNOWN. HOWEVER, OSCILLATIONS ARE FILTERED IN THE SERVOAMPLIFIER.					

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SIZE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A481-0214/PI-602-00-08 PITCH GYRO	COUNTDOWN	5F 611211	11	YES NO		006237
<p>FAILURE MODE-ERRATIC OPERATION-SHED LIGHT DROPPED OUT DURING THE SAP TEST.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL-WHEN THE PITCH GYRO WAS TORQUED HARD OVER IN NEGATIVE PITCH THE SHED LIGHT WOULD DROP OUT.</p> <p>VEHICLE EFFECT-NONE.</p> <p>CORRECTIVE ACTION-GYRO 233 WAS REPLACED BY GYRO 293.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A98-04-3022-F AMPLIFIER	FAR 27-41002-835	5F 611209	ETR	NO NO	60/C	007663
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SYMPTOM OF FAILURE WAS AN INOPERATIVE PITCH TORQUE INPUT. REPORTED FAILURE WAS NOT CONFIRMED. REPORTED FAILURE WAS DUE TO HUMAN ERROR OR TEST EQUIPMENT MALFUNCTION.</p> <p>CORRECTIVE ACTION-ETR WAS NOTIFIED OF FAILURE ANALYSIS RESULTS. RELIABILITY CONTROL ENGINEERING WILL MONITOR THIS PROBLEM AND TAKE ACTION WHEN DEEMED NECESSARY.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AR141-0-1-121/TC-400-02-121	COMPOSITE-FACTORY	121D 611206	FACTORY	NO NO		009233
<p>FAILURE MODE-FAIL DURING OPERATION. CHANNEL 8 OF THE FLIGHT CONTROL SANSORN RECORDER, SUSTAINER YAW, DID NOT INDICATE FULL NEGATIVE TORQUING FROM GUIDANCE AT 163 SECONDS. THE G.E. TEST TAPES WERE NOT GIVING THE FLIGHT CONTROL GYRO ENOUGH TIME TO MOVE IN FULL NEGATIVE YAW.</p> <p>SYSTEM EFFECT-OPERATION STOP PREMATURELY. THE PLANNED TEST OF THE YAW GYRO WAS NOT FULLY PERFORMED.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-THE GUIDANCE TEST TAPES WERE REPUCHED.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3029F RATE GYRO RESISTOR	FAR 27-45045-8	6F 611206	ETR	YES NO		
<p>FAILURE MODE-ELECTRICAL OPEN. DURING MARCHE CHECKOUT, THE PITCH RATE GYRO DID NOT PROPERLY TORQUE WHEN VOLTAGE WAS APPLIED. COLD SOLDER JOINT ON ONE END OF THE CALIBRATION RESISTOR RESULTED IN NO SIGNAL OUTPUT TO THE OUTPUT EMITTER FOLLOWERS INDICATING NO TORQUE ACTION.</p> <p>CORRECTIVE ACTION-THE CIRCUIT BOARD WAS REDESIGNED PLACING THE CALIBRATION RESISTOR IN AN AREA OF EASY ACCESS TO PA</p>							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAI OTH	VENDOR NAME VENDOR PART NO
CITITATE PROPER SOLDERING.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3093-F AMPLIFIER	FAR 27-41568-5	811K08	FACTORY	YES NO	
FAILURE MODE-ERRATIC OPERATION-UNIT OSCILLATED UNDER LOADED CONDITIONS DURING TEST-TORQUE FAILURE NOT VERIFIED BEC AUSE THERMAL RUNAWAY OF 2N339 TRANSISTORS PREVENTED COMPLETE TESTING OF AMPLIFIER.						
CORRECTIVE ACTION-UNKNOWN. REPORTED FAILURE NOT CONFIRMED BECAUSE THERMAL RUNAWAY OF TRANSISTORS DESTROYED UNIT DUR ING FAILURE ANALYSIS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3089F GYRO-DISPLACEMENT	F.R 27-41002-855	35E 61118	ETR	YES NO	YES REARFOYT
FAILURE MODE-ERRATIC OPERATION. STICKION (INTERMITTENT MECHANICAL BINDING) OCCURRED AND WAS CONFIRMED. CAUSE UNKNOWN N.						
CORRECTIVE ACTION-UNKNOWN GO/C AND VENDOR FURTHER INVESTIGATION CAUSE OF STICKION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3040-F AMPLIFIER-TRANSISTOR	FAR 27-41002-855	5F 61118	ETR	YES NO	
FAILURE MODE-FAIL DURING OPERATION. PITCH DISPLACEMENT GYRO WOULD NOT NULL DUE TO THERMAL RUNAWAY OF TRANSISTORS 8- 5 AND 9-8.						
CORRECTIVE ACTION-TORQUEUR AND SIGNAL AMPLIFIERS REDESIGNED PER ECP 933. 2N339 TRANSISTORS REPLACED WITH 2N496 AND H EATS 31M3 IMPROVED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A81-0887/L1-401-00-108 GYRO SIGNAL AMPLIFIER	FLIGHT	108D 61122	1-1 844	YES YES	
FAILURE MODE-FAIL DURING OPERATION. PITCH CONTROL LOST AT 244 SECONDS. POSSIBLE THAT A GYRO SIGNAL AMPLIFIER FAILURE E OCCURRED AS A RESULT OF USE OF NEW INSULATED TYPE TRANSISTOR (LOW RUNAWAY TEMP CHARACTERISTIC) COUPLED WITH EXCESS IVE EXTERNAL HEATING OF GYRO PACKAGE. HEATING MAY HAVE BEEN CAUSED BY LOSS OF RETROCKET COVER.						
SYSTEM EFFECT-ERRATIC OPERATION. THE MISSILE REACHED A PITCH-UP RATE OF 4.87 DEGREES PER SECOND BY SUSTAINER SHUTDO WN. LOSS OF PITCH CONTROL RESULTED IN NON-RECEIPT OF GROUND GUIDANCE GENERATED BECO. SUSTAINER ENGINE SHUT DOWN AS A RESULT OF LOW DEPLETION.						
VEHICLE EFFECT-IMPROPER TRAJECTORY. MISSION FAILURE RESULTED FROM FLIGHT CONTROL SYSTEM MALFUNCTION.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-TRANSISTORS REPLACED WITH ONES THAT HAVE BETTER HEAT DISSIPATION. ADDITIONAL HARNESS PROTECTION F OR THE P609 UNBILICAL HARNESS IN THE AREA OF A SHARP RADIUS. A NUMBER OF IMPROVEMENT CHANGES WERE ALSO INCORPORATED INTO THE AUTOPILOT.						897997
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A99-04-3026F AMPLIFIER RESISTOR	FAR 27-41378-805	611110	FACTORY	YES NO		897286
	FAILURE MODE-ELECTRICAL OPEN. DURING FACTORY CANISTER CHECKOUT A NO-GO WAS RECEIVED ON TORQUING SENSITIVITY. R 20 R ESISTOR WAS BURNED. 66 AND 67 TRANSISTORS REQUIRED TO DISSIPATE MORE THAN RATED POWER WHEN AMPLIFIER IS IN STATIC ST ATE. EMITTER RESISTORS R-19 AND R-20 NOT ADEQUATE.						
	CORRECTIVE ACTION-TORQUE AND SIGNAL AMPLIFIERS REDESIGNED. REPLACED 2N339 WITH 2N498 TRANSISTORS AND IMPROVED HEAT SINKS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3061 GYRO-RATE	FAR 27-41002-855	35E 611107	ETR	YES NO	YES HONEYWELL	895083
	FAILURE MODE-CONTAMINATION-DURING CONTROL MANEUVER TEST ROLL RATE GYRO EXHIBITED STICKING AND A CONSTANT RATE OUTPU T. ANALYSIS SHOWED METAL CONTAMINATION IN SILICON DAMPING FLUID.						
	CORRECTIVE ACTION-VENDOR IMPROVED QC PROCEDURES AND INITIATED VARIOUS IMPROVEMENTS IN SOLDERING AND INSPECTION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AE61-1028/FC-9CO-01-031 TUBE, ELECTRONIC	COMPOSITE-FACTORY 27-45201-619	31F 611103	FACTORY	NO NO		896433
	FAILURE MODE-OUT OF TOLERANCE-ALL SERVO BIAS FUNCTIONS WERE GREATER THAN EXPECTED. CAUSED BY TWO FAULTY SIGNAL ISOL ATION RECTIFIER TUBES IN THE AGE.						
	SYSTEM EFFECT-OPERATION TOO HIGH-SERVO BIAS WAS TOO HIGH.						
	VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING REQUIRED TO ISOLATE SOURCE OF PROBLEM. COMPOSITE RE-TEST P ENFORMED.						
	CORRECTIVE ACTION-AGE TUBES WERE REPLACED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-98-04-3048 AMPLIFIER	FAR 27-45202-801	32E 611030	ETR	NO NO		
	FAILURE MODE-OUT OF TOLERANCE. DURING CHECKOUT PITCH BLAVING RATE WAS HIGH AT 0.395 DEG/SEC/VOLT WHERE MAXIMUM OF 0 .384 DEG/SEC/VOLT IS ALLOWED. REJECTION DUE TO HUMAN ERROR AND/OR TEST EQUIPMENT CALIBRATION.						

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AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AC-61-0098/S1-808-A8-01 FORWARD GYRO PACKAGE HEATER	CAPTIVE	1F 611009	S1 -110	YES NO		095347
<p>FAILURE MODE-OUT OF TOLERANCE. AN AUTOPILOT FAIL INDICATION RESULTED FROM THE FORWARD GYRO PACKAGE TEMPERATURE FALLING BELOW ITS MINIMUM LIMIT OF 30 DEGREES F. CAUSE UNKNOWN.</p> <p>SYSTEM EFFECT-NONE.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED.</p> <p>CORRECTIVE ACTION-PLACE PACKAGE AFTER ATTEMPT S1-607-A8-01.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AC-61-0098/S1-607-A8-01 FORWARD GYRO PACKAGE HEATER	CAPTIVE	1F 611009	S1 -270	YES NO		095348
<p>FAILURE MODE-OUT OF TOLERANCE. AN AUTOPILOT FAIL INDICATION RESULTED FROM THE FORWARD GYRO PACKAGE TEMPERATURE FALLING BELOW ITS MINIMUM LIMIT OF 30 DEGREES F. CAUSE UNKNOWN.</p> <p>SYSTEM EFFECT-LOW TEMPERATURE ENVIRONMENT.</p> <p>VEHICLE EFFECT-COUNTDOWN, COMPOSITE ABORTED AND RESCHEDULED.</p> <p>CORRECTIVE ACTION-REPLACED GYRO PACKAGE.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	RA-98-3089-F GYRO-RATE SHRD	FAR 27-41703-809	117D 610930	ETR	YES NO	MONEYWELL	094743
<p>FAILURE MODE-OUT OF TOLERANCE. YAW RATE GYRO OUTPUT WAS LESS THAN THE REQUIRED 0.5 VOLTS PEAK. FAILURE CONFIRMED. DUE TO DEMAGNETIZED SHRD MAGNET.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	RA-98-3089-F GYRO-RATE-SHRD	FAR 27-41703-809	117D 610930	ETR	NO NO	MONEYWELL	094742
<p>FAILURE MODE-OPEN (ELECT)-OPEN SHRD CIRCUIT IN PITCH RATE GYRO. FAILURE DUE TO USE OF WRONG GSE HARNESS CABLE WHICH ERRONEOUSLY APPLIED VOLTAGE TO SHRD WINDINGS AND BURNED THE WIRES.</p> <p>CORRECTIVE ACTION-ETR SITE TEST HARNESSES REIDENTIFIED TO AVOID POSSIBILITY OF HUMAN ERROR IN CONNECTION.</p>							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3041-F GYRO-DISPLACEMENT	FAR 27-45202-1	1F 610930	SYCAMORE	YES NO	KEARFOTT	894282
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- YAW GYRO INOPERATIVE DUE TO FROZEN SPIN MOTOR. ROLL GYRO NOISY AND AT LOW SPEED PROBABLY DUE TO BAD BEARINGS.							
CORRECTIVE ACTION-VENDOR PRODUCED NEW MODEL GYRO WITH IMPROVED SPIN MOTOR.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	H-98-04-3030 AMPLIFIER	FAR 27-45202-1	30E 610927	ETR	YES NO		894212
FAILURE MODE-ERRATIC OPERATION-17K CPS OSCILLATION DEVELOPED IN PITCH SIGNAL AMPLIFIER-CAUSE OF OSCILLATION PROBABLY DUE TO THERMAL EFFECTS ON PARTS.							
CORRECTIVE ACTION-NONE REQUIRED-OSCILLATIONS ARE FILTERED IN THE SERVOAMPLIFIER.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9K-04-3043 GYRO-DISPLACEMENT-AMPLIFIER	FAR 27-45202-1	37E 610926	FAIRCHILD D	YES NO	KEARFOTT	893889
FAILURE MODE-FAIL DURING OPERATION-WACHE CHECKOUT EXHIBITED NO-GOS ON CARDS 67, 69, 81 AND 83-YAW GYRO INOPERATIVE . YAW TORQUE AMPLIFIER FAILED WHEN TRANSISTOR Q-5 (TYPE 2N339) WENT INTO THERMAL RUNAWAY. GYRO FAILURE PROBABLY DUE TO EXCEEDING OPERATIONAL LIFE OF 850 HRS.							
CORRECTIVE ACTION-VENDOR PRODUCED NEW MODEL GYRO WITH IMPROVED SPIN MOTOR. TORQUE AND SIGNAL AMPLIFIERS REDESIGNED PER ECP 933. 2N339 TRANSISTORS REPLACED WITH 2N438 AND HEAT SINKS IMPROVED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9K-04-3068-F GYRO-DISPLACEMENT-MOTOR	FAR 27-45202-1	41E 610924	FAIRCHILD D	YES NO		894086
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- DURING WACHE CHECKOUT NO-GOS OCCURRED ON CARDS CHECKING YAW TORQUE GAINS. YAW GYRO SPIN MOTOR FAILED.							
CORRECTIVE ACTION-VENDOR REDESIGNED DISPLACEMENT SPIN MOTOR.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9K-04-3058-F RATE GYRO-ROLL	FAR 69-45045-1	41E 610924	FAIRCHILD D	YES NO	
FAILURE MODE-STRUCTURAL. ERRATIC OPERATION DUE TO LOSS OF DAMPING FLUID THRU BROKEN TERMINAL.						
CORRECTIVE ACTION-VENDOR NOTIFIED AND IMPROVED HIS QUALITY CONTROL OF TERMINAL INSTALLATION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9F-04-3044 AMPLIFIER-TRANSISTOR	FAR 27-45202-1	43E 610909	WARREN	YES NO	
FAILURE MODE-OUT OF TOLERANCE. NO-GOS ON CARDS 73 AND 162, MAPCHE DECK 237 DUE TO THERMAL RUNAWAY OF TRANSISTOR Q-5 (2N339).						
CORRECTIVE ACTION-TORQUER AND SIGNAL AMPLIFIERS REDESIGNED PER ECP 933.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AC-61-0050/S1604-A4-01 DISPLACEMENT GYRO ELECTRICAL CONNE CTOR	CAPTIVE	1F 610901	81	YES NO	
FAILURE MODE-OPEN (ELECT). A POST-RUN CHECK REVEALED A BROKEN WIRE ON THE PLUG GOING INTO THE DISPLACEMENT GYRO CAN NISTER.						
SYSTEM EFFECT-OPERATION DOES NOT START-PITCH GUIDANCE ENABLE SWITCHING FAILED TO OCCUR.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-THE PLUG WAS REPLACED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-9H-04-3051 AMPLIFIER-RESISTOR	FAR 27-45202-1	45E 610901	FORBES	YES NO	
FAILURE MODE-ELECTRICAL OPEN. ROLL TORQUING GAIN OUT-OF-TOLERANCE 9 DEG/SEC/VOLT HIGHER THAN MAX ALLOWABLE-FEEDBACK RESISTOR (R-24) INTERMITTENTLY OPEN.						
CORRECTIVE ACTION-VENDOR REDESIGNED RESISTOR BY INCLUDING WELDED LEAD JOINTS TO PREVENT DAMAGE TO THE JOINT DURING SOLDERING OPERATIONS.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A99-04-3025F RATE GYRO HEATER	FAR 7-04230-1	610830	FACTORY	YES NO	YES KEARFOIT	097666
FAILURE MODE-ERRATIC OPERATION. THE COARSE HEATER CYCLED ERRATICALLY. PROBABLE CONTAMINATED THERMOSTAT ELEMENT. OLD TYPE NO LONGER USED.							
CORRECTIVE ACTION-THE VENDOR IS PRESENTLY USING A THERMOSTAT WITH A COVERED ELEMENT PROTECTING IT AGAINST CORROSION. OLD TYPE NO LONGER IN USE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A99-04-3027F CIRCUIT BOARD TRANSISTOR	FAR 27-43302-1	44E 610826	FAFB	YES NO	YES NO	097666
FAILURE MODE-ELECTRICAL SHORT. DURING MARCHE CHECKOUT, NO-60 WERE RECEIVED ON CARDS 66 AND 162 INDICATING AN EXCESSIVELY HIGH PITCH RATE. SIGNAL AMPLIFIER TRANSISTOR Q2 WAS SHORTED FROM EMITTER POST TO CASE DUE TO GOLD SOLDER SPLA SH. Q3 SUFFERED SECONDARY DAMAGE.							
CORRECTIVE ACTION-GO/C HAS PURGED ALL TRANSISTORS MADE BY THIS MANUFACTURER. NEW TECHNIQUES ARE BEING USED TO ELIMINATE THIS TYPE OF PROBLEM BY ADEQUATE RECEIVING INSPECTION.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A99-04-3026F RATE GYRO	FAR 7-04230-3	610823	FACTORY	YES NO	YES KEARFOIT	097667
FAILURE MODE-DRIFT-DURING FACTORY DRIFT TESTS, THIS RATE GYRO WAS REPORTED TO HAVE EXCESSIVE DRIFT.							
CORRECTIVE ACTION-SINCE THE CAUSE OF THE FAILURE WAS NOT ESTABLISHED, NO ACTION WAS TAKEN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	96-04-3003F AMPLIFIER/TRANSISTOR	FAR 27-43302-1	610819	ETR	YES NO	YES NO	098660
FAILURE MODE-CONTAMINATION-REMOTE RATE OUTPUT SIGNAL OUT OF TOLERANCE (LOW). CAUSE OF FAILURE INTERNAL CONTAMINATION OF TRANSISTOR.							
CORRECTIVE ACTION-CORRECTIVE ACTION CONTAINED IN A CLASSIFIED REPORT ISSUED BY DEPARTMENT 143-3							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-3003F DISPLACEMENT GYRO, YAW	FAR 27-45502-1	680 610619	ETR	YES NO	
FAILURE MODE-FAIL DURING OPERATION-YAW DISPLACEMENT GYRO NOT RUNNING. DEPLETION OF LUBRICANT AND OVERHEATING OF SPI N MOTOR BEARING.						
CORRECTIVE ACTION-GYRO REPLACED. VENDOR NOTIFIED OF TYPE FAILURE. IMPROVED SPIN MOTOR BEING MANUFACTURED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-3004F AMPLIFIER/TRANSISTOR	FAR 27-45502-1	610613	ETR	YES NO	
FAILURE MODE-CONTAMINATION-PITCH SIGNAL AMPLIFIER OUTPUT EXHIBITING PHASE REVERSAL INTERMITTENTLY. CAUSE OF FAILURE INTERNALLY CONTAMINATED TRANSISTOR.						
CORRECTIVE ACTION-CORRECTIVE ACTION CONTAINED IN A CLASSIFIED REPORT ISSUED BY DEPARTMENT 145-3.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	ADH-04-3024F GYRO	FAR 27-45502-1	610611	FAFB	NO NO	
FAILURE MODE-OUT OF TOLERANCE. DURING DECK 237 MARCHE CHECKOUT, NO-60 WERE RECEIVED FOR CARDS 129 THROUGH 138 INDICATING PROGRAMMER OUT PUT MALFUNCTION. HOWEVER, REPLACING THE GYRO CAN RESULT IN PROPER SYSTEM OPERATION. THE PROGRAMMER WAS NOT ANALYZED. GYRO CANISTER WAS ANALYZED AND NO MALFUNCTION WAS FOUND.						
CORRECTIVE ACTION-HOME. FAILURE WAS NOT IN GYRO CANISTER AND FORBES AFB IS NO LONGER UNDER GO/C JURISDICTION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	90-04-269 CANISTER	FAR 27-45502-1	24E 610611	WTR	YES NO	YES BAKER-MANLEY
FAILURE MODE-LEAK. THE ITEM CANISTER LEAKED GAS. LEAKAGE OF THE PRESSURIZATION GAS WAS DUE TO HOLES DRILLED AND TAPED CROOKED BY THE MACHINING VENDOR.						
CORRECTIVE ACTION-FOR UNITS ALREADY MACHINED, LEAKAGE CHECKOUT PERSONNEL ARE INSTALLING LARGER -RINGS WHICH WILL SEAL (WITH ENGINEERING APPROVAL). THE MACHINING VENDOR WAS INFORMED AND HE WILL USE EXTRA CAUTION TO AVOID FUTURE REPEITION OF THE PROBLEM. GO/C WILL MAINTAIN SURVEILLANCE ON THIS PART TO ASSURE THAT THE SITUATION DOES NOT RECUR.						

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	98-04-3014-F AMPLIFIER	FAR 27-45202-1	44E 610730	FAB	YES 50/C NO	099533
FAILURE MODE-FAIL DURING OPERATION-YAW DRIFT OUT-OF-TOLERANCE. CAUSE, FAILED TRANSISTOR Q7 2N339, RESISTOR R20 AND TRANSFORMER T1, ALL DAMAGED BY OVERHEATING. COMPONENTS LOCATED IN RATE TORQUE AMPLIFIER.						
CORRECTIVE ACTION-TORQUE AND SIGNAL AMPLIFIERS HAVE BEEN REDESIGNED, 2N339 TRANSISTORS REPLACED BY 2N439. HEAT SINKS IMPROVED. C1C13993, ECP933, C1C 14089, C1C14412, C1C14597. VENDOR SILVER SOLDERED PIN B TO END CAP, MELTING POINT 1100 DEGREES F.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	A481-0137/P2-401-00-111 GYRO-DISPLACEMENT	COUNTDOWN	111D 610729	12 -5260	YES NO	091432
FAILURE MODE-ELECTRICAL SHORT. 81 PCD COOLING DUCT CONDENSATION DRIPPED ON F1001 UNBILICAL PLUG CAUSING THE GYRO EMHITTER FOLLOWER VOLTAGE TO BE GROUNDED AT THE UNBILICAL (YAW CHANNEL).						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. THE YAW GYRO COULD NOT BE NULLED AND THE GYRO NULL INDICATOR LIGHT CAME ON.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 27 MINUTES.						
CORRECTIVE ACTION-THE UNBILICAL WAS DRIED WITH G42 AND SEALED WITH DC-7 COMPOUND. A RED TAPE WATER SHIELD WAS DEvised.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	98-04-259	FAR 27-41002-843	610725	ETR	NO NO	093774
FAILURE MODE-OUT OF TOLERANCE. DURING YAW GUIDANCE SLAVING TEST, THE CANISTER GAINS WERE 15 PERCENT ABOVE NOMINAL AT 4 AND 8 VOLTS PEAK TO PEAK INPUT. FAILURE ANALYSIS DID NOT CONFIRM THE FAILURE. THE CHANGE IN AMPLIFIER GAIN SINCE LEAVING THE FACTORY WERE INSIGNIFICANT. THE DIFFERENCES NOTED AT ETR ARE ATTRIBUTED TO DIFFERENCES BETWEEN FACTORY AND SITE TEST EQUIPMENT. RFM CORRECTIVE ACTION-A NEW FECHER TABLE HAS BEEN INSTALLED AT ETR. WHEN THIS EQUIPMENT IS PROPERLY CALIBRATED THE DIFFERENCES IN TEST SETS SHOULD BE MINIMIZED. SPECIFICATION REQUIREMENTS ARE BEING REVIEWED TO DETERMINE IF IT IS POSSIBLE TO BROADEN FIELD TEST REQUIREMENTS.						
CORRECTIVE ACTION-A NEW FECHER TABLE HAS BEEN INSTALLED AT ETR. WHEN THIS EQUIPMENT IS PROPERLY CALIBRATED THE DIFFERENCES IN TEST SETS SHOULD BE MINIMIZED. SPECIFICATION REQUIREMENTS ARE BEING REVIEWED TO DETERMINE IF IT IS POSSIBLE TO BROADEN FIELD TEST REQUIREMENTS.						

19 JUN 1966

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	9H-04-271	FAR 27-43202-1	33E 810720	FORBES	YES NO		894611
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME-THE ROLL GUIDANCE VOLTAGE FAILED TO OPERATE THE TORQUING AMPLIFIER R. NO CANISTER DISCREPANCIES COULD BE FOUND DURING FAILURE ANALYSIS. IT WAS CONCLUDED THAT THE APPARENT FAILURE WAS DUE TO HUMAN ERROR SINCE BASE PERSONNEL WERE CERTAIN THAT GROUND SUPPORT EQUIPMENT WAS OPERATING NORMALLY.							
CORRECTIVE ACTION-RELIABILITY WILL MONITOR THIS TYPE OF FAILURE TO DETERMINE IF IT IS A FAILURE OF THE PROCEDURE, HUMAN ERROR, OR EQUIPMENT. FIELD PERSONNEL ARE CAUTIONED AGAINST REJECTING CANISTER BEFORE IT IS CERTAIN THAT THE CANISTER HAS FAILED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-003	FAR 55-41002-5	104D 810719	ETR	YES NO	50/C	891378
FAILURE MODE-ERRATIC OPERATION. UNIT REJECTED FOR ERRATIC DRIFT NOTED IN THE ROLL CHANNEL AND THE SPIN MOTOR APPEARED SLOW.							
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AE61-0361/FC-4CO-02-093 DISPLACEMENT GYRO	COMPOSITE-FACTORY	93D 810718	FACTORY	NO NO	50/C	899280
FAILURE MODE-FAIL DURING OPERATION-PITCH DISPLACEMENT GYRO MULLING WAS NOT PRESENT AFTER TERMINATION OF SUSTAINER PITCH PROGRAM DUE TO FAULTY MULLING AND BUCKOUT AMPLIFIERS IN THE AGE.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. COMPOSITE RETEST WAS REQUIRED.							
CORRECTIVE ACTION-THE MULLING AND BUCKOUT AMPLIFIERS IN THE AGE WERE REPLACED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AE61-0832/FC-6CO-01-008	COMPOSITE-FACTORY	6P 810713	FACTORY	NO NO		898394
FAILURE MODE-ERRATIC OPERATION. UNEXPECTED MOVEMENTS WERE OBSERVED ON ENGINE DATA AT VARIOUS TIMES DURING THE TEST DUE TO FAULTY PROGRAMMER TEST TAPES.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. COMPOSITE RERUN AFTER REPLACING TAPES.							
CORRECTIVE ACTION-REPLACED AGE PROGRAMMER TAPES.							

GENERAL DYNAMICS
CONVAIR DIVISION

13 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	NO-90-04-2377 AMPLIFIER GYRO-DISPLACEMENT	FAR 27-41002-641	97D 810709	WTR	YES NO		892158
FAILURE MODE-OUT OF TOLERANCE. THE ITEM SHOWED LOW TORQUING SENSITIVITY DURING YAW TORQUE TESTS. IT WAS FOUND THAT THE ROLL GYRO WAS EXTREMELY MOIST AND IT TOO COULD NOT BE TORQUED. THE ROLL GYRO S/N 1012-D WAS DISASSEMBLED. THE BEARINGS WERE COVERED WITH A FIBROUS RESIDUE FIBER RETAINERS WERE BURNED AND CRACKED AT BOTH BEARINGS. THE R-20-R-22 RESISTORS WERE BURNED AND THE T-1 TRANSFORMER WAS SHORTED AND CRACKED OPEN ON THE ROLL TORQUE AMPLIFIER S/N 158. TRANSISTOR 6-7 TYPE 2N339 WAS SHORTED, ALSO ON YAW TORQUE AMPLIFIER.							
CORRECTIVE ACTION-THE TORQUE AND SIGNAL AMPLIFIERS HAVE BEEN REDESIGNED INCLUDING CHANGING THE 2N339 TRANSISTOR TO 2N458 TRANSISTORS AND IMPROVING THE TRANSISTOR HEAT SINKS. RARS 98-04-664 AND 685 COVERING CANISTER HANDLING PRECAUTIONS HAVE BEEN WRITTEN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-272 AMPLIFIER	FAR 27-45202-1	610705	ETR-J	YES NO		894565
FAILURE MODE-OUT OF SPECIFICATION. THE PITCH SLAVING 2 VRMS WAS OUT OF TOLERANCE. THE VALUE OBTAINED WAS .0397 AND LIMITS ARE .0382-.0394. ANALYSIS CONFIRMED THE FAILURE. THE PITCH SLAVING HAD BEEN MARGINAL WHEN THE CANISTER LEFT THE FACTORY. A SMALL CHANGE IN AMPLIFIER GAIN CAUSED THE CALIBRATION TO BECOME OUT OF SPECIFICATION.							
CORRECTIVE ACTION-A REVIEW OF FACTORY AND FIELD TEST TOLERANCE SPECIFICATIONS IS BEING CONDUCTED TO DETERMINE IF THE FACTORY SPECIFICATIONS ARE PROPER AND IF WIDER TOLERANCES SHOULD NOT BE USED IN THE FIELD.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-228 AMPLIFIER	FAR 27-45202-1	610626	ETR	NO NO		895053
FAILURE MODE-OUT OF SPECIFICATION. THE PITCH RATE AMPLIFIER SUM WAS SLIGHTLY OUT OF SPECIFICATION ON THE HIGH END. A NO THE ROLL DISPLACEMENT AMPLIFIER WAS SLIGHTLY OUT OF SPECIFICATION ON THE HIGH END. THE OUT OF SPECIFICATION MEASUREMENT WAS ATTRIBUTED TO DIFFERENCES BETWEEN FACTORY AND SITE CHECKOUT EQUIPMENT.							
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	4E61-0240/P1-503-00-17 PITCH DISPLACEMENT GYRO	FLIGHT	17E 610622	WTR 15	YES NO	YES NEARFOOT	
FAILURE MODE-FAILED DURING OPERATION. PITCH DISPLACEMENT GYRO SPIN MOTOR RUNNING AT AN AVERAGE REDUCED SPEED OF 64 PCT OF 24,000 RPM RESULTED IN A 56 PCT GREATER PITCHOVER RATE.							
SYSTEM EFFECT-OPERATION TOO HIGH. VEHICLE PITCH RATE WAS EXCESSIVE.							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER	VEHICLE	DATE	TIME	DIFF	PRI	VENDOR NAME
80--SYSTEM	FAILED COMPONENT NAME	DIP DATA SOURCE	PART NUMBER	DATE	TIME	DIFF	PRI
VEHICLE EFFECT-IMPROPER TRAJECTORY. DUE TO EXCESSIVE PITCHOVER RATE DURING BOOSTER STAGE PITCH PROGRAM RESULTING IN LOSS OF MISSILE AT 100 SECS DUE TO AERODYNAMIC HEATING AND/OR LOADING. LOSS OF 310T/VERNIER HYDRAULIC PRESSURE AT 9 7 SECONDS DUE TO LEAK IN ONE QUARTER INCH HP LINE CAUSED BY EXTREME AERODYNAMIC FORCES AND VERNIER FAIRING COLLAPSE. UNUSUAL INCREASE OF LOW TANK PRESSURE AT 78 SECONDS DUE TO AERODYNAMIC HEATING AND BLOSH.							
CORRECTIVE ACTION-ECP 1001 EFFECTIVE ON 27 AND SUBSEQUENT E AND F AND D MISSILES. SPIN MOTOR 80711 DETECTION (SHAD) WILL DETECT ANY RATE OR DISPLACEMENT GYRO RUNNING OUT OF SYNC AND BEING CONNECTED IN SERIAL. UTOPILOT REA BY CRT. WILL AUTOMATICALLY PREVENT LAUNCH.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	90-04-238	FAR 27-45202-1	3F 610621	WTR	NO	NO	NO
FAILURE MODE-FAILED DURING OPERATION. THERE WAS NO OUTPUT FROM THE PITCH SIGNAL AMPLIFIER. THE FAILURE WAS NOT CONFIRMED. IT WAS CONCLUDED THAT THE APPARENT FAILURE WAS DUE TO A MALFUNCTION OF SOME OTHER COMPONENT OF THE SYSTEM OR TO A HUMAN ERROR.							
CORRECTIVE ACTION-RELIABILITY IS MONITORING THIS TYPE OF FAILURE IN AN EFFORT TO DETERMINE WHERE THE ACTUAL MALFUNCTION OCCURRED. FIELD RELIABILITY PERSONNEL HAVE BEEN REQUESTED TO CHECK GROUND SUPPORT EQUIPMENT IN AN EFFORT TO LOCATE THE CAUSE OF FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	90-04-240 AMPLIFIER/TRANSISTORS	FAR 27-45202-1	22E 610610	FORBES	YES	NO	NO
FAILURE MODE-ELECTRICAL SHORT. SYMPTOMS OF FAILURE INDICATED A FAULTY PITCH TORQUE AMPLIFIER. THE CANISTER HAD REMAINED ON THE MISSILE DURING A 36 DAY PERIOD WITHOUT POWER BEING APPLIED. FAILURE ANALYSIS REVEALED SHORTED TRANSISTORS 9-7/68, BOTH M6 TRANSISTORS, AND AN OVERHEATED 12 TRANSFORMER ON THE A342 CIRCUIT BOARD OF THE PITCH TORQUE AMPLIFIER.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION AS THE CAUSE OF THE FAILURE COULD NOT BE DEFINITELY DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-20-04-231F GYRO-DISPLACEMENT, PITCH 8/M 9740/B 27-45202-1 EARING	FAR 27-45202-1	22E 610608	ETR	YES	NO	NO
FAILURE MODE- OUT OF TOLERANCE. THE PITCH GYRO SENSITIVITY WAS OUT OF TOLERANCE. FAILURE ANALYSIS REVEALED THAT THE PITCH GYRO (3/M 9740) WAS AUDIBLY NOISY. THE GYRO WOULD NOT REACH SYNCHRONOUS SPEED 18000 RPM REACHED-24000 RPM REQ (USED). SPIN MOTOR BEARINGS WERE DRY AND THE FIBER RETAINER WAS POWDERED AND CRACKED. THE GYRO FAILED DUE TO LACK OF LUBRICATION.							
CORRECTIVE ACTION-RELIABILITY IS MONITORING THIS TYPE OF FAILURE TO DETERMINE THE EXACT CAUSE OF THESE FAILURES. SINCE AUGUST 1961, A NEW C70 GYRO WITH AN IMPROVED SPIN MOTOR HAS BEEN PLACED IN SERVICE. THE C70 GYROS ARE USED IN ALL NEW CANISTERS AND ARE REPLACING THE OLDER GYROS ON A NON-INTERFERENCE BASIS.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME	SITE TIME OF DAY	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	CT-98-04-002 DISPLACEMENT GYRO	FAR 55-41002-5	610806	AMR	YES	KEARFOOT	0910061
FAILURE MODE-OUT OF TOLERANCE. UNIT WAS REJECTED FOR INDICATION OF STICKION DURING CHECKOUT. FAILURE ATTRIBUTED TO DEFORMED FLEX LEADS DRAGGING ON THE CIRCUIT BOARD.							
CORRECTIVE ACTION-VENDOR REQUESTED TO IMPROVE QUALITY CONTROL IN THIS AREA.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-289	FAR 27-41002-829	610805	ETR-J	YES		094523
FAILURE MODE-OUT OF SPECIFICATION IN THE PITCH CHANNEL. FAILURE ANALYSIS DO NOT CONFIRM ANY FAILURE. IT WAS CONCLUDED THAT THE FAILURE WAS NOT IN THE CANISTER. THE FAILURE MAY HAVE BEEN DUE TO UNKNOWN DISCREPANCIES IN ETR TEST EQUIPMENT.							
CORRECTIVE ACTION-THE TOLERANCE SPECIFICATIONS IN THE FACTORY AND AT ETR ARE BEING REVIEWED TO DETERMINE NECESSARY CHANGES. A FECHER TABLE HAS BEEN INSTALLED IN THE GYRO LAB AT ETR. WHEN THIS NEW EQUIPMENT IS PROPERLY CALIBRATED, FAILURES OF THIS TYPE SHOULD BE ELIMINATED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-285 GYRO-DISPLACEMENT	FAR 27-41002-829	610601	ETR	YES		092104
FAILURE MODE-STRUCTURAL. ALL DISPLACEMENT AMPLIFIERS WERE OUT OF TOLERANCE. THE PITCH GYRO S/N 5908 EXHIBITED VARIATION IN SENSITIVITY AND THE YAW GYRO S/N 7840 WAS AUDIBLY NOISY. THE FAILURE WAS CAUSED BY A BROKEN GIMBAL PIVOT PIN AND FAULTY SPIN MOTORS. THE MOST PROBABLE CAUSE OF FAILURE WAS MISHANDLING OF THE GYRO CANISTER.							
CORRECTIVE ACTION-FACTORY AND FIELD PERSONNEL HAVE BEEN REQUESTED TO TAKE EXTREME CAUTION WHILE HANDLING CANISTER A NO REPORT ACCIDENTAL MISHANDLING PRIOR TO OPERATION. THIS WAS ACCOMPLISHED BY RAR98-04-804 AND RAR 98-04-803.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-274 GYRO-DISPLACEMENT	FAR 27-45202-1	610531	ETR-J	YES		
FAILURE MODE-OUT OF TOLERANCE. THE ROLL DISPLACEMENT AMPLIFIER SUM WAS DETERMINED OUT OF TOLERANCE. THE FAILURE WAS NOT CONFIRMED; HOWEVER, THE ROLL GYRO SENSITIVITY DID CHANGE DURING TESTING. ROLL GYRO S/N 0230 SHOWED A HIGH DRIFT RATE WHICH MAY HAVE BEEN DUE TO END PLAY IN THE GIMBAL PIN.							
CORRECTIVE ACTION-THE VENDOR HAS BEEN NOTIFIED OF THIS PROBLEM. HE HAS GIVEN ASSURANCE THAT HIS QUALITY CONTROL IS IMPROVING. INFORMATION ON THE END PLAY TOLERANCE HAS BEEN REQUESTED FROM THE VENDOR. REFERENCE RAR 98-04-803. THE VE							

13 JUN 1969

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-224 HEATER	FAR 27-45202-1	10E 610526	FORBES	YES NO		884518 885155
<p>MOOR HAS BEEN REQUESTED TO INSURE THAT THE SAPPHIRE BEARINGS ARE NOT CAUSING WEAR IN THE GIMBAL PINS.</p> <p>FAILURE MODE-SHORT (ELECTRICAL). THE OUTPUT VOLTAGE FROM THE ROLL DISPLACEMENT GYRO FINE HEATER WAS HIGH. OUT OF TOLERANCE DUE TO A SHORTED COIL IN THE MAGNETIC AMPLIFIER TEMPERATURE CONTROL CIRCUIT.</p> <p>CORRECTIVE ACTION-THE FAILURE WAS ATTRIBUTED TO HUMAN ERROR OR FAILURE IN GROUND SUPPORT EQUIPMENT. RELIABILITY WILL MONITOR THIS TYPE OF FAILURE TO ESTABLISH AND ELIMINATE THE CAUSE OF FAILURE.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-209 GYRO	FAR 27-45202-1	610526	ETR	NO NO	60/C	888870
<p>FAILURE MODE-OUT OF TOLERANCE. DURING GYRO LAB TESTS, THE SUM OF THE PITCH DISPLACEMENT GYRO OUTPUTS WAS OUT OF TOLERANCE.</p> <p>CORRECTIVE ACTION-FAILURE NOT CONFIRMED. FAILURE INDICATIONS PROBABLY DUE TO ETR AND FACTORY TEST SET INCOMPATIBILITIES. ACTION BEING TAKEN TO ELIMINATE TEST SET INCOMPATIBILITIES.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-276 GYROSCOPE-DISPLACEMENT/RESISTOR	FAR 27-45202-1	10E 610526	ETR	YES NO		884518
<p>FAILURE MODE-OUT OF TOLERANCE. THE PITCH FINE HEATER EXHIBITED AN INTERMITTENT OPERATION AND THE FINE HEATER VOLTAGE DROPPED TO ZERO. ANALYSIS INDICATED THAT THE FAILURE WAS DUE TO A HEAT SENSITIVE SERIES RESISTOR. THE RESISTOR MAY NOT HAVE BEEN ONE WITH THE CORRECT TOLERANCE.</p> <p>CORRECTIVE ACTION-SINCE THIS IS THE FIRST REPORTED FAILURE OF THE GYROSCOPE CAUSED BY A HEAT SENSITIVE RESISTOR, RELIABILITY WILL MONITOR THIS TYPE OF FAILURE TO DETERMINE IF A DESIGN CHANGE IS NECESSARY. THE VENDOR IS AWARE OF THE PROBLEM AND HAS ASSURED RELIABILITY THAT THEY ARE USING THE APPROVED TYPE OF RESISTOR.</p>							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-208 GYRO	FAR 27-45302-1	610516	ETR	YES NO		
<p>FAILURE MODE-OUT OF TOLERANCE. DURING GYRO LAB TESTS, THE YAW RATE GYRO SUMS WITH HIGH AND LOW EXCITATION AND THE ROLL AMPLIFIER SUM WERE OUT OF TOLERANCE.</p> <p>CORRECTIVE ACTION-FAILURE NOT CONFIRMED. FAILURE INDICATIONS PROBABLY DUE TO ETR AND FACTORY TEST SET INCOMPATIBILITIES.</p>							

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER	DIP DATA SOURCE	VEHICLE	SITE	PRI	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE	DIF	OTH	VENDOR PART NO
TIES. INITIATED ACTION TO IMPROVE TEST SET COMPATIBILITY.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-223 GYRO-DISPLACEMENT	FAR 27-43202-1	21E 810518	ETR	YES NO	
FAILURE MODE-DRIFT-EXCESSIVE ROLL DRIFT RATE OF ROLL DISPLACEMENT GYRO DUE TO MISALIGNMENT OF THE B PHASE TERMINAL POST AND A COLD-SOLDER JOINT AT THE TERMINAL CONNECTION.						
CORRECTIVE ACTION-THE VENDOR HAS BEEN NOTIFIED OF THIS PROBLEM AND IS ATTEMPTING TO OBTAIN BETTER QUALITY CONTROL. A NEW SERIES OF GYROS WITH IMPROVEMENTS TO ELIMINATE MANY PRESENT PROBLEMS IS UNDER TEST.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AE81-0403/FC-5CO-01-048	COMPOSITE-FACTORY	49C 810515	FACTORY	YES NO	
FAILURE MODE-FAIL DURING OPERATION-THE GYRO CANISTER FAILED TO FUNCTION DUE TO A BURNED OUT POWER SUPPLY.						
SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. A PARTIAL COMPOSITE TEST WAS RUN.						
CORRECTIVE ACTION-THE GYRO CANISTER WAS REPLACED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-230 GYRO-DISPLACEMENT	FAR 27-43302-1	100D 810511	ETR	YES NO	
FAILURE MODE- ELECTRICAL SHORT. THERE WAS A LOW ROLL DISPLACEMENT GYRO TORQUE RATE AND THE YAW FINE HEATER WAS INTERMITTENT. THE DISPLACEMENT ROLL GYRO (S/H 711C) FAILED BECAUSE OF A DAMAGED FINE HEATER SENSING ELEMENT WHICH CAUSED THE LOW ROLL GYRO TORQUE RATE. THE DISPLACEMENT YAW GYRO (S/H 729C) FAILED DUE TO A SHORT CIRCUIT OF THE SPIN MOTOR STATOR TO SPIN MOTOR COVER GIVING INTERMITTENT FINE HEATER ACTION.						
CORRECTIVE ACTION-THE VENDOR DECREASED THE CUMULATIVE TOLERANCES DURING GYRO BUILD-UP TO PROVIDE ADEQUATE CLEARANCE TO ELIMINATE CROWDING ON ASSEMBLY. THE VENDOR HAS INSTITUTED EXTENDED OVERVOLTAGE TEST TO CULL OUT DEFECTIVE ASSEMBLIES. A PERSONNEL RETRAINING PROGRAM HAS BEEN INSTITUTED. A 20X MICROSCOPIC INSPECTION OF SOLDERED JOINTS HAS BEEN INSTITUTED. INCOMING WINDING WIRE IS BEING CHECKED UNDER 60X MAGNIFICATION FOR INSULATION DEFICIENCIES. HIGH DIELECTRIC AND A MERCURY BATH TEST HAS BEEN INSTITUTED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-233 AMPLIFIER RESISTOR	FAR 27-43202-1	810426	ETR	YES NO	
FAILURE MODE-OUT OF TOLERANCE. THE YAW DISPLACEMENT AMPLIFIER SUM WAS OUT OF TOLERANCE. ANALYSIS VERIFIED THE FAILURE RE. THE MOST PROBABLE CAUSE OF THE FAILURE WAS A CHANGE IN THE VALUE OF THE 3 PCT. RESISTORS DUE TO ENVIRONMENTAL CONDITIONS.						

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DEER PAGE

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1948

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-THE CALIBRATION RESISTORS PRESENTLY BEING USED IN PRODUCTION ARE 1 PCT. RESISTORS OF THE METALLIC FILM TYPE. THESE RESISTORS ARE MORE RELIABLE AND ARE LESS SENSITIVE TO CHANGES DUE TO ENVIRONMENTAL CONDITIONS.							992318
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	98-04-234 GYRO-RATE	FAR 27-43045-1	19E 810419 D	FAIRCHILD D	YES NO		992338
FAILURE MODE-ELECTRICAL SHORT. THE MACHINE TEST INDICATED THAT THE GYRO HEATER VOLTAGE WAS ZERO VOLTS AND SHOULD HAVE BEEN 207 TO 300 VDC. THE FAILURE WAS CAUSED BY SOLDER SHORT-CIRCUITING THE THERMOSTAT TERMINAL TO GROUND.							
CORRECTIVE ACTION-INSPECT ON WAS NOTIFIED AND REQUESTED TO INCREASE THEIR SURVEILLANCE ON THIS PART. TEST SPECIFICATIONS IN THE FACTORY ARE BEING REVISED AND CHANGES WILL BE MADE TO COMPENSATE FOR DIFFERENCES IN TEST SET.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	98-04-202 DISPLACEMENT GYRO HEATER	FAR 27-43302-1	810406 ETR		NO NO		992677
FAILURE MODE-ERRATIC OPERATION-YAW DISPLACEMENT GYRO HEATER WAS NOTED TO BE OPERATING ERRATICALLY IN GYRO LAB TESTS							
CORRECTIVE ACTION-NONE REQUIRED-LATER SERIES GYRO HEATERS WITH IMPROVED WINDING AND DIFFERENT OPERATING CHARACTERISTICS.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	AD61-0117/DA-426/B2-4NO-02-83 GYRO-RATE	COMPOSITE-FRD/DPL 93-D 810404	5748-2		YES NO		992770
FAILURE MODE-OUT OF TOLERANCE. PITCH AND ROLL RATE GYRO OSCILLATED AT 36 TO 42 CPS AT 2.5 AND 1.33 DEG PER SECOND RESPECTIVELY.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	AS-04-222 GYRO-RATE	FAR 7-04230-1	810404 FACTORY		YES NO		
FAILURE MODE-FAILED DURING OPERATION-FAILED DURING MISSILE FINAL CHECKOUT IN THE FACTORY. THE GYRO EXHIBITED AUDIOIBLE NOISE DURING CHECKOUT. THE UNIT FAILED DUE TO DEPLETION OF SPIN MOTOR BEARING LUBRICANT.							

GENERAL DYNAMICS
CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTM	VENDOR NAME VENDOR PART NO	
							893083
CORRECTIVE ACTION-THE VENDOR HAS INSTITUTED A SPECIAL CLEANING PROCESS TO INSURE REMOVAL OF HARD SPOTS FROM THE BEARING RETAINER THEREBY INCREASING LUBRICANT HOLDING PROPERTIES. THE VENDOR ALSO INCREASED THE SPIN MOTOR BEARING RUN-IN TIME SINCE THE BEARING LUBRICANT IS APPLIED BY OBSERVING THE SATURATION OF THE RETAINER DURING THE RUN-IN PERIOD.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AES1-0268/FC-SCO-01-039 CANISTER	COMPOSITE-FACTORY	39E 610316	FACTORY	YES NO		899403
FAILURE MODE-OUT OF TOLERANCE. THE VERNIER ROLL TORQUING GAINS WERE LOWER THAN EXPECTED-THE GYRO CANISTER WAS FOUND TO BE FAULTY							
SYSTEM EFFECT-OUTPUT TOO LOW ROLL TORQUING GAINS TOO LOW.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING WITH ANOTHER GYRO CANISTER SHOWED SATISFACTORY GAINS. SINCE THE DEFECTIVE GYRO CANISTER IS A SLAVE, THE COMPOSITE TEST WAS CONSIDERED ACCEPTABLE.							
CORRECTIVE ACTION-NOT KNOWN.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	DAS6A/L2-4MO-01-87 YAW RATE GYRO	COMPOSITE-FRD/DPL	970 610223	1-2	YES NO		897219
FAILURE MODE-OUT OF SPECIFICATION. GYRO NOT SPINNING AT PROPER SPEED.							
SYSTEM EFFECT-ERRATIC OPERATION. INADEQUATE RESPONSE TO YAW GYRO TORQUING.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-REPLACED REMOTE RATE GYRO. (PAR 90-04-073)							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	90-04-163 DISPLACEMENT GYRO HEATER	FAR 27-41002-621	610131	WTR	YES NO	YES REARFOIT NO	894986
FAILURE MODE-ELECTRICAL SHORT. YAW GYRO HEATER CIRCUIT WOULD NOT TURN OFF. FAILURE DUE TO THE HEATER SENSOR CONTROL MAGNETIC AMPLIFIER SHORT CIRCUITING INTERNALLY AND SPLITTING OPEN.							
CORRECTIVE ACTION-NONE. CAUSE OF SHORT DETERMINED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AES1-0054/FC-SCO-01-018 AMPLIFIER	COMPOSITE-FACTORY	18E 610128	FACTORY	NO NO	NO 80/C NO	
FAILURE MODE-FAIL DURING OPERATION. PITCH GYRO TORQUING FROM THE GUIDANCE SYSTEM WAS TOO LOW.							

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUTOPLOIT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-COMPOSITE DELAYED. SYSTEM AND COMPOSITE RETEST WERE REQUIRED.						
CORRECTIVE ACTION-INVESTIGATION REVEALED THE PROBLEM TO BE IN THE AGE GYRO MULLING LOOP. EXACT CORRECTIVE ACTION NOT KNOWN.						
AUTOPLOIT-SQUARE-A/B GYRO PACKAGE	8K-04-214 GYRO-DISPLACEMENT	FAR 27-41002-821	14E 810124 D	FAIRCHILD	YES NO	
FAILURE MODE-OUT OF TOLERANCE. THE ROLL DISPLACEMENT GYRO WAS AUDIBLY NOISY AND HAD A LOW TORQUING RATE.						
CORRECTIVE ACTION-THE VENDOR WAS NOTIFIED OF THE PROBLEM. IMPROVEMENT IN QUALITY CONTROL WAS INSTITUTED.						
AUT PILOT-SQUARE-A/B GYRO PACKAGE	9D-04-133 DISPLACEMENT GYRO RESISTOR	FAR 27-41002-821	7E 810112	WTR	YES NO	
FAILURE MODE-ELECTRICAL OPEN. DURING AUTOPLOIT SYSTEM TESTS THE YAW SIGNAL AMPLIFIER WOULD NOT RESPOND TO TORQUING INPUT SIGNALS. FAILURE WAS DUE TO A FAULTY SOLDER CONNECTION ON RESISTOR R-30 OF THE YAW SIGNAL AMPLIFIER.						
CORRECTIVE ACTION-GO/C RESTRICTED THE SOLDERING OPERATION TO THE ELECTRONICS BUILD-UP AREA. THE SOLDERING IS THEN T O BE REINSPECTED BEFORE THE CALIBRATION BOARD IS RETURNED TO THE CANISTER FOR FURTHER ELECTRICAL TESTS.						
AUTOPLOIT-SQUARE-A/B GYRO PACKAGE	7E60-1013/FC-SC0-02-018 AMPLIFIER	COMPOSITE-FACTORY	16E 801220		NO NO	
FAILURE MODE-OUT OF TOLERANCE. THE SUBSTATION ENGINE WAS TORQUED AT AN EXCESSIVE RATE IMMEDIATELY FOLLOWING THE GUIDANCE ENABLE FUNCTION. CAUSED BY A FAULTY AGE MULLING AMPLIFIER.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED. PARTIAL COMPOSITE RETEST WAS PERFORMED.						
CORRECTIVE ACTION-THE AGE MULLING AMPLIFIER WAS REPLACED.						
AUTOPLOIT-SQUARE-A/B GYRO PACKAGE	6K-04-182 DISPLACEMENT GYRO	FAR 7-41015-919	99D 801130	WTR	YES NO	
FAILURE MODE-OUT OF TOLERANCE. DURING APCHE SYSTEM TESTING THE YAW GYRO GAIN AT THE INPUT TO THE YAW INTEGRATOR WAS LOW. THE YAW RATE INTEGRATING GYRO GAIN AT THE INPUT TO THE STABILIZATION FILTER WAS ALSO LOW. BELIEVED DUE TO VENDOR AND GO/C MEAT BINS INCOMPATIBILITY						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYS- SUB-SYS-ITEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PHI OTH	VENDOR NAME VENDOR PART NO	
							097062
	CORRECTIVE ACTION-FAILURE UNCONFIRMED. REARPORT IS INITIATING A NEW MANUFACTURING PROCESS SPECIFICATION FOR THE MANUFACTURING AND TESTING OF THE COMPENSATING RING. TESTING IS TO BE PERFORMED AT THE CANISTER LEVEL AND EFFORTS ARE TO BE MADE TO ENSURE COMPATIBILITY BETWEEN VENDORS TESTING AND GO/A RECEIVING INSPECTION.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-132 CIRCUIT BOARD-TRANSISTOR	FAR 27-41000-817	60110	ETR	YES NO		094176
	FAILURE MODE-SHORT (ELECT). DURING GYRO LABORATORY TESTS THE STATIC GAINS ON THE VI YAW AND VI PITCH/ROLL CHANNELS WERE UNSTABLE. TRANSISTOR Q3 ON THE U2A842 CIRCUIT BOARD WAS SHORT CIRCUITED. BELIEVED TO BE DUE TO AN INADVERTENT APPLICATION OF A LARGE ELECTRICAL LOAD.						
	CORRECTIVE ACTION-THIS IS THE FIRST RECORDED FAILURE OF THIS TYPE. GO/C INTENSIFIED SURVEILLANCE OF THIS COMPONENT.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A60-0324/P2-401-00-03 CONNECTOR	COUNTDOWN	550 601022	12 -4200	YES NO		097064
	FAILURE MODE-ELECTRICAL OPEN. BROKEN WIRE IN PLUG P001 TO GYRO CANISTER.						
	SYSTEM EFFECT-OPERATION DOES NOT START. SUSTAINER ENGINE WOULD NOT RESPOND IN YAW PLANE.						
	VEHICLE EFFECT-COUNTDOWN DELAYED. PREVIOUSLY CALLED HOLD EXTENDED 170 MINUTES WITH 35 MINUTE RECYCLE.						
	CORRECTIVE ACTION-WIRING REPAIRED.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-119 GYRO-DISPLACEMENT-WIRING	FAR 27-41002-821	3E 600922	ETR	YES NO		094172
	FAILURE MODE-SHORT (ELECT). DURING TESTING THE YAW DISPLACEMENT GYRO SPIN MOTOR WAS INOPERATIVE. FAILURE DUE TO SPI N MOTOR FLEX LEAD SHORT CIRCUIT TO SPIN MOTOR COVER CAP ASSEMBLY.						
	CORRECTIVE ACTION-(1) GYRO VENDOR ELECTRICALLY INSULATED THE INSIDE OF THE COVER CAP ASSEMBLY (2) ALL DISPLACEMENT GYROS (3) WERE REPLACED WITH UNITS INCORPORATING INSULATED COVER CAPS.						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-105 DISPLACEMENT GYRO HEATER	FAR 27-41002-807	2E 600902	ETR	YES NO		094172
	FAILURE MODE-CONTAMINATION. ROLL DISPLACEMENT GYRO COARSE HEATER WAS NOT FUNCTIONING CORRECTLY DURING TESTING AT 35 CANORE. HEATER THERMOSTAT CONTACTS WERE COVERED WITH A BLACKISH BROWN DEPOSIT.						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM S.B.-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	JIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-CEMENT HOLDING THERMOSTAT SWITCH ON GYRO CHANGED TO A LESS CONTAMINATING TYPE (BACON LAB.LCA-2). SEARCH FOR A MORE RELIABLE SWITCH INITIATED.						097777
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	98-04-093 GYRO-ROLL DISPLACEMENT	FAR 27-41002-823	600712	ETR	YES NO		097724
	FAILURE MODE-ERRATIC OPERATION-DURING SUB-SYSTEM TESTING THE GYRO ASSEMBLY SUCCESSFULLY PASSED ALL TESTS BUT WAS REJECTED FOR AUDIBLE NOISE AND EXCESSIVE VIBRATION OF THE ROLL DISPLACEMENT GYRO. SPIN MOTOR BEARINGS WERE CORRODED.						
	CORRECTIVE ACTION-WEAR TO VENDOR TO-1. ENSURE PURITY AND DEW POINT OF HELIUM IS WITHIN REQUIREMENTS. 2. INSTITUTE ULTRASONIC CLEANING OF PARTS WHERE FEASIBLE. 3. USE FIXTURE DURING BEARING LAPPING OPERATIONS. 4. USE STORAGE DESSICATORS. 5. USE MCOOS DURING SOLDERING AND WIRE STRIPPING. 6. ISOLATE MANUFACTURING OPERATIONS, ASSEMBLY UNITS IN POSITIVE PRESSURE AT ALL TIMES. 7. ELIMINATE SOLDERING OF HOUSINGS, USE CEMENT INSTEAD. 8. PLATE PARTS SUSCEPTIBLE TO CORROSION INSTEAD OF PAINTING.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	98-04-093 DISPLACEMENT GYRO	FAR 27-41002-823	600701	ETR	YES NO		097694
	FAILURE MODE-OUT OF TOLERANCE. DURING GYRO LAB CHECKOUT UNITS PITCH SLAVING SENSITIVITY VALVES WERE NOTED TO BE OUT OF TOLERANCE. FAILURE COULD NOT BE CONFIRMED AT S.D. TEST SET ERROR SUSPECTED.						
	CORRECTIVE ACTION-NONE. FAILURE COULD NOT BE CONFIRMED.						
AUTOPLOT-SQUARE-A/B GYRO PACKAGE	98-04-091 WIRING-40V POWER	FAR 27-41001-887	600621	ETR	YES NO	60/C	097749
	FAILURE MODE-ELECTRICAL SHORT. DURING MISSILE CHECKOUT, PROGRAMMER INTERMITTENTLY RESET TO ZERO. FAILURE WAS DUE TO SHORT CIRCUITING OF THE 40V FEED THROUGH ON THE HIGH POWER 4 BOARD TO THE METAL FRAME. THERE WAS INADEQUATE CLEARANCE BETWEEN THE TWO.						
	CORRECTIVE ACTION-REDESIGN OF PROGRAMMER IMPLEMENTED TO PROVIDE ADEQUATE CLEARANCE BETWEEN THE 40V FEED THROUGH AND THE METAL FRAME ASSEMBLY.						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AE00-0363/FC-SC0-01-03 HARNES33	COMPOSITE-FACTORY	SE 600427		YES NO		898503
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME, BECAUSE OF AN OPEN SIGNAL WIRE AT THE ARMA GUIDANCE DISCONNECT ARM A YAW TORQUING WAS NOT EVIDENCED ON THE AFTER STAGING. SYSTEM EFFECT-OPERATION STOPS PREMATURELY, YAW TORQUING STOPPED AT STAGING.							
CORRECTIVE ACTION-THE SIGNAL WIRE WAS REPAIRED.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-067 GYRO-DISPLACEMENT	FAR 27-41002-823	600426	ETR	NO NO		897799
FAILURE MODE-OUT OF TOLERANCE-GYROS EXHIBITED HIGH DRIFT RATES IN THE PITCH AND YAW CHANNELS. FAILURE COULD NOT BE CONFIRMED AS BEING IN GYRO. FAILURE ATTRIBUTED TO ELECTRICAL NOISE PICKUP ON THE TEST SET.							
CORRECTIVE ACTION-TVA ISSUED TO CALL OUT ELECTRICAL GROUNDING NECESSARY TO REDUCE NOISE TO THE CANISTER.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-062 GYRO-DISPLACEMENT	FAR 27-41002-809	600407	ETR	YES NO		897799
FAILURE MODE-OUT OF TOLERANCE-DURING TEST THE PITCH DISPLACEMENT GYRO RESPONSE WAS FOUND TO BE HIGH OUT OF TOLERANCE E AND THE YAW DISPLACEMENT GYRO RESPONSE WAS FOUND TO BE LOW OUT OF TOLERANCE. GYROS WERE DRAWING EXCESS CURRENT. GY ROS WERE EQUIPPED WITH 3 PCT TRIMMING RESISTORS							
CORRECTIVE ACTION-WEAR ISSUED TO VENDOR TO IMPROVE QUALITY CONTROL PROCEDURES. ONE PER CENT METALLIC FILM PRECISION RESISTORS ARE BEING SUPPLIED FOR GAIN TRIMMING OF THE GYROS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-033 AMPLIFIERS/TRANSFORMERS	FAR 27-41002-809	600400	ETR	YES 60/C NO		891330
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME, DURING TEST THERE WAS NO OUTPUT RESPONSE FROM PITCH OR ROLL TORQUE R AMPLIFIERS. TRANSFORMERS FAILED DUE TO INADEQUATE RATINGS.							
CORRECTIVE ACTION-TORQUE AMPLIFIER OUTPUT TRANSFORMERS REPLACED WITH COMPONENT THAT HAVE HIGHER CURRENT RATINGS.							

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GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-108 GYRO-DISPLACEMENT/HEATER	FAR 27-41002-833	800325	ETR	YES NO	60/C	892243
FAILURE MODE-CONTAMINATION. COARSE HEATER THERMOSTAT OPEN DUE TO CONTAMINATION ON CONTACTS. OUT-GASING OF POTTING O R CEMENT SUSPECTED AS CONTAMINATION SOURCE.							
CORRECTIVE ACTION-THE VENDOR HAS CHANGED CEMENT USED TO MOUNT THERMOSTAT TO REDUCE OUTGASING.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-034 GYRO-DISPLACEMENT/RESISTORS	FAR 27-41002-809	800211	ETR	YES NO	60/C	892182
FAILURE MODE-OUT OF TOLERANCE. ROLL GYRO TORQUING SENSITIVITY OUT OF SPECIFICATION LIMITS DURING GYRO LABORATORY TE STS. TRIMMING RESISTORS TOLERANCE BANDS TOO WIDE.							
CORRECTIVE ACTION-DESIGN CHANGED TO REQUIRE 1 PERCENT PRECISION RESISTORS IN PLACE OF 5 PER CENT PRECISION RESISTEN S FOR GAIN TRIMMING.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-039 GYRO-TRANSFORMER	FAR 27-41002-809	42D 800119	ETR	YES NO		890993
FAILURE MODE-ELECTRICAL OPEN. 6SC BATTERY ACTIVATE LIGHT WAS ON WHEN IT SHOULD HAVE BEEN OFF. FOLLOWING CIRCUIT CHE CKS TO DETERMINE CAUSE THE GYRO AND PROGRAMMER FAILED. THE GYRO HAD AN OPEN RATE GYRO PICKOFF AND A DAMAGED SINGLE P HASE TRANSFORMER.							
CORRECTIVE ACTION-NONE-CAUSE OF FAILURE COULD NOT BE DETERMINED. SYSTEMS CLOSELY WATCHED FOR RECURRENCE OF FAILURE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	98-04-352SF CIRCUIT BOARD-CONNECTOR	FAR 27-41002-897	82119	SAN DIES O	YES NO		89514P
FAILURE MODE-STRUCTURAL-A CHIPPED CONNECTOR WAS FOUND ON THE PITCH SIGNAL AMPLIFIER (MODULE). THE FAILURE WAS CONFIR MED. IT IS POSSIBLE THAT THE SIGNAL AMPLIFIER BOARD WAS MISHANDLED, CAUSING THE CONNECTOR TO BREAK.							
CORRECTIVE ACTION-UNKNOWN.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-4 INBORN

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	AR141-D-1-128/PC-4CO-01-128 AMPLIFIER	COMPOSITE-FACTORY	128D 62030	FACTORY	YES NO	
<p>FAILURE MODE-FAIL DURING OPERATION. ROLL GYRO BIAS AND TORQUING FUNCTIONS WERE LESS THAN EXPECTED. THE NEGATIVE ROLL GYRO BIASING FUNCTIONS AT 80 AND 220 SECONDS WERE POSITIVE PHASE RATHER THAN NEGATIVE PHASE AS EXPECTED. ALSO, A ROLL GYRO BIAS FUNCTION WAS EVIDENT FROM 194 TO 208 SECONDS INSTEAD OF THE EXPECTED TORQUING FUNCTION. THIS CONDITION WAS CAUSED BY A FAULTY ROLL TORQUER AMPLIFIER WITHIN THE GYRO CANISTER.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. SYSTEMS LEVEL AND COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-THE FAULTY ROLL TORQUER AMPLIFIER WAS REPLACED.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3292F CONNECTOR	FAR 27-41002-855		FACTORY	NO NO	
<p>FAILURE MODE-OUT OF SPECIFICATION-GYRO PACKAGE REJECTED DUE TO BURNS ON CONNECTOR J-1 BETWEEN PINS AA, 66 AND FF. DAMAGE WAS ATTRIBUTED TO HAVING GYRO HEATER POWER APPLIED WHEN CONNECTOR WAS DEMATED.</p> <p>CORRECTIVE ACTION-PERSONNEL CAUTIONED TO REMOVE POWER BEFORE DEMATING CONNECTOR.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3291F GYRO, DISPLACEMENT	FAR 27-41002-889	179D	WTR	YES NO	YES KEARFOTT
<p>FAILURE MODE-ERRATIC OPERATION-GYRO CAN WAS REJECTED FOR STICKION IN YAW DISPLACEMENT GYRO. GYRO WAS FOUND TO HAVE DIMPLED THRUST PLATE, DISTORTED FLEX LEAD, AND CONTAMINATED FLUOROLUBE. EXACT CAUSE OF STICKION WAS NOT DETERMINED.</p> <p>CORRECTIVE ACTION-NEW TESTS FOR STICKION INSTITUTED IN RECEIVING INSPECTION GYRO REDESIGNED.</p>						
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SLV-99-04-4791-F BARD	FAR 27-43188-3		FACTORY	YES NO	YES 60/C
<p>FAILURE MODE-OUT OF TOLERANCE. THE BARD SUBASSEMBLIES WERE REJECTED WHEN THEY WOULD NOT SUCCESSFULLY PASS THE FUNCTIONAL TEST.</p> <p>CORRECTIVE ACTION-NONE-FAILURE NOT COMPLETED.</p>						

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GENERAL DYNAMICS
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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-88-04-3439-F SMRD FILTER	FAR 27-41002-855	BYCAMORE	YES 50/C NO			994191
FAILURE MODE-OUT OF TOLERANCE. EXCESSIVE TIME BETWEEN APPLICATION OF GYRO A.C. AND THE 50-INDICATION FROM THE SMRD CIRCUIT RESULTED FROM A DEFECTIVE SMRD FILTER.							
CORRECTIVE ACTION-THIS TYPE FILTER NO LONGER USED IN PACKAGE. IMPROVED FILTER NOW IN USE. PACKAGE RETURNED TO ASSEMBLY AREA FOR INSTALLATION OF IMPROVED FILTER.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-4672C TRANSFORMER	FAR 27-04395-3	FACTORY	YES THERMADOR NO 27-04395-3			991893
FAILURE MODE-STRUCTURAL. TRANSFORMER CORNERS WERE CRACKED. PREVIOUS ANALYSIS SHOWED THIS CAUSE OF FAILURE TO BE INSUFFICIENT STRUCTURAL STRENGTH OF THE MOTTING COMPOUND.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	A-99-04-3162F GYRO-DISPLACEMENT.	FAR 7-04250-3	FACTORY	YES KEARFOOT NO C70-2504-000			991246
FAILURE MODE-CONTAMINATION. TWO GYROs EXHIBITED STICKTION DURING FUNCTIONAL TESTING. FAILURE WAS CONFIRMED. CONTAMINATION IN THE FLUOROLURE DAMPING FLUID WAS FOUND AND WAS THE CAUSE OF THE FAILURE.							
CORRECTIVE ACTION-UNKNOWN. VENDOR NOTIFIED OF THE RESULTS OF THE ANALYSIS.							
AUTOPILOT-SQUARE-A/B GYRO PACKAGE	SP-90-04-3170F GYRO-SMRD	FAR 27-41703-809	112D	WTR	YES NO		991239
FAILURE MODE-OUT OF TOLERANCE. THE ROLL RATE GYRO HAD A LOW OUTPUT, 4.5 VOLTS PEAK /5.0V PEAK MINIMUM/. FAILURE WAS CONFIRMED. THE FAILURE WAS CAUSED BY A DEMAGNETIZED MAGNET IN THE ROLL-RATE GYRO. THE MAGNET WAS PROBABLY DEMAGNETIZED BY A TRANSIENT OR INADVERTENT MISAPPLICATION OF VOLTAGE DURING TROUBLESHOOTING.							
CORRECTIVE ACTION-ALL PERSONNEL HANDLING GYROs WERE CAUTIONED AGAINST MISAPPLICATION OF VOLTAGES AND IMPROPER TROUBLESHOOTING OF THE SMRD CIRCUITRY VIA TWR 117-116 DATED JULY 26, 1966.							

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CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	69A3287.2 CHOKE, FILTER	UTP-PET 27-04186-1	66-03-09	60/C	YES NO	APPLIED COMPO ENTS 1325	890303
FAILURE MODE-STRUCTURAL-THE TEST SPECIMEN FAILED THE THERMAL SHOCK TEST. LOT NO. 7. THE FIBERGLASS CASE SEPARATED FROM THE POTTING COMPOUND ON THE BOTTOM OF THE SPECIMEN. CAUSE OF CASE SEPARATION PROBABLY DUE TO MOLD RELEASE ON CASE OR GREASE AND DIRT FROM HANDLING.							
CORRECTIVE ACTION-LOT NO. 7 REJECTED. CAR 6154 SENT TO VENDOR TO TIGHTEN QC. PROCEDURES TO INSURE CLEAN ENCAPSULATION CUPS. REPLY TO CORRECTIVE ACTION EXPECTED 31 MAY 66. REF. CTCN NO. 551-4-045							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	69A3287.1 CHOKE, FILTER	UTP-PET 27-04183-1	66-03-09	60/C	YES NO	APPLIED COMPO ENTS 1325	890303
FAILURE MODE-STRUCTURAL-THE TEST SPECIMEN FAILED THERMAL SHOCK TEST. THE FIBERGLASS CASE SEPARATED FROM THE POTTING COMPOUND ON THE BOTTOM OF THE SPECIMEN. CAUSE OF CASE SEPARATION PROBABLY DUE TO MOLD RELEASE OR GREASE AND DIRT FROM HANDLING.							
CORRECTIVE ACTION-LOT REJECTED (LOT NO. 8) CAR 6154 SENT TO VENDOR TO TIGHTEN QC. PROCEDURES TO INSURE CLEAN ENCAPSULATION CUPS. REPLY TO CORRECTIVE ACTION EXPECTED 31 MAY 1966. REF. CTCN NO. 551-4-044							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	69A3288 CHOKE, FILTER	UTP-PET 27-04186-1	66-03-09	60/C	YES NO	APPLIED COMPO ENTS 1325	890304
FAILURE MODE-STRUCTURAL-THE TEST SPECIMEN FAILED THE THERMAL SHOCK TEST FOR LOT #8. THE FIBERGLASS CASE SEPARATED FROM THE POTTING COMPOUND ON THE TOP OF THE SPECIMEN. CAUSE OF CASE SEPARATION PROBABLY DUE TO MOLD RELEASE OR GREASE OR GREASE AND DIRT FROM HANDLING.							
CORRECTIVE ACTION-LOT NO. 8 REJECTED. CAR 6154 SENT TO VENDOR TO TIGHTEN QC. PROCEDURES TO INSURE CLEAN ENCAPSULATION CUPS. REPLY TO CORRECTIVE ACTION EXPECTED 31 MAY 1966. REF. CTCN NO. 551-4-046							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	69A3241 CHOKE-REACTOR, 30 VOLT, POWER SUPPLY	UTP-PET 27-04124-1	66-04-22	60/C	YES NO	CONVAIR 27-04124-1	890283
FAILURE MODE-OUT OF TOLERANCE- INDUCTANCE OF SPECIMEN WAS MEASURED TO BE 3.9 MH AT 10 VAC, 2400 CYCLES, AND 1.5 ADC. THE INDUCTANCE SHOULD BE 3.0 MH MIN.- TEST PROCEDURE IN ERROR SINCE SPEC. WAS IN PROCESS OF CHANGING.							
CORRECTIVE ACTION-SPECIFICATION CHANGE IN PROGRESS. INDUCTANCE REQUIREMENTS TO BE 3.0 MHY MIN AT 2400 CYCLES, 1.0 AMP D.C. TESTING REPEATED AND CONTINUED TO COMPLETION. REF. CTCN NO. 551-4-043							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATE DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOFILO1-SQUARE-A/B FILTER AND SERVOMP	27C4952-1 CHOKE-FILTER	UTP-PET 27-04186-1	88-03-30	607C	YES NO	APPLIED COMPO ENTS 1. 1325
FAILURE MODE-STRUCTURAL-FAILED THERMAL SHOCK TEST. FIBERGLASS CASE SEPARATED FROM THE POTTING COMPOUND ON THE BOTTOM OF THE SPECIMEN. THE CASE SEPARATION WAS PROBABLY CAUSED BY MOLD RELEASE ON CASE OR GREASE AND DIL FROM HANDLING.						
CORRECTIVE ACTION-LOT REPRESENTED BY TEST #2 TO BE REJECTED. NEW LOT MUST BE TESTED. CAR 6154 SENT TO VENDOR TO TIG WHEN QC PROCEDURES TO INSURE ENCAPSULATION CUPS. REPLY TO CAR EXPECTED 31 MAY 1966. REF. CTCM NO. 551-4-041						
AUTOFILO1-SQUARE-A/B PLCU FILTER AND SERVOMP	27C4950-1 TRANSFORMER	27-04184-1	88-03-04	607C	YES NO	SPATRON TCS25145
FAILURE MODE-SHORT (ELECTRICALLY)- SPECIMEN FAILED DURING OVERLOAD TEST. FAILURE CONFIRMED BY AN EXCESSIVE PRIMARY CURRENT DURING INDUCED VOLTAGE TEST FOLLOWING OVERLOAD. FURTHER TESTING SHOWED DC RESISTANCE OF WINDING HAD DECREASED APPROXIMATELY EQUAL TO 9 OHMS DURING OVERLOAD. THIS WAS CAUSED BY EITHER DEFECTIVE WIRE COATING OR EXCESSIVE WIRE TENSION.						
CORRECTIVE ACTION-CORRECTIVE ACTION REQUEST WRITTEN. CAR 6099 REQUESTING VENDOR TO 1. CHECK WIRE COATING PER MIL-W-983 AND 2. CHECK WINDING MACHINES FOR EXCESSIVE TENSION ON WIRE. LOT REJECTED (LOT NO 710-38) PET TO BE ACCOMPLISHED ON NEW LOT REF CTCM NO. 551-4-040						
AUTOFILO1-SQUARE-A/D FILTER AND SERVOMP	69A4955 TRANSFORMER, AUDIO FREQUENCY	UTP-PET 27-04398-1	960520	607C	YES NO	MAGNETIKA 58259
FAILURE MODE-STRUCTURAL SPECIMEN CRACKED DURING THERMAL SHOCK TEST OF LOT NO.3. A SMALL AMOUNT OF POTTING MATERIAL WAS SEEPING OUT. AREA AROUND CRACK WAS SOFT. ENTIRE TRANSFORMER WAS SOFT. CAUSE PROBABLY DUE TO BREAKDOWN IN RESIN WINDING PROCEDURES SO THAT OVERAGE OR IMPROPERLY MIXED MATERIAL WAS USED.						
CORRECTIVE ACTION-APO TO G. KHAUSS, DEPT. 145-1, 8 JUNE 1966 REQUESTING IMMEDIATE OPI SURVEILLANCE OF THIS VENDORS RESIN HANDLING PROCEDURES STORAGE. CONTROL OF SHELF LIFE, MIXING PROCEDURES AND CURING SCHEDULES AND INITIATION OF NECESSARY CORRECTIVE ACTION. OPI FINDINGS EXPECTED BY 10 JULY 66. CORRECTIVE ACTION IF NECESSARY BY 30 JULY 1966 REF. CTCM NUMBER 551-4-047.						
AUTOFILO1-SQUARE-A/B FILTER AND SERVOMP	81V-99-04-3127 SERVOAMPLIFIER ASSEMBLY	FAR 68-41751-815	960311	FACTORY	YES NO	607C
FAILURE MODE-ERRATIC OPERATION-ASSEMBLY WAS REJECTED FOR HIGH FREQUENCY OSCILLATIONS IN THE BOOSTER 1 PITCH CHANNEL. FAILURE ANALYSIS COULD NOT CONFIRM THE REPORTED FAILURE. HOWEVER THE FAILURE WAS DUPLICATED BY USING A FOOT LONG						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	SHIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
TEST CABLE. IT WAS CONCLUDED FAILURE COULD OCCUR IN THE TOP ASSEMBLY DUE TO AN ACCUMULATION OF TOLERANCES AND TO THE LONG INTERCONNECTING TEST CABLES.							890474
CORRECTIVE ACTION-NO CORRECTIVE ACTION CAN BE TAKEN AS THE EXACT CAUSE OF THE FAILURE INDICATION WAS NOT FOUND.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	CT-93-04-284 SERVOCYLINDER ASSEMBLY, SUSTAINER	FAR 27-65314-919	2900 660302	ETR	YES NO	YES 60/C	890423
FAILURE MODE-ERRATIC OPERATION CAUSED BY SUPERIMPOSED HIGHER THAN NORMAL OSCILLATIONS ON THE UNITS NORMAL 10 CPS TRACE. REPORTED FAILURE WAS NOT VERIFIED.							
CORRECTIVE ACTION-FIELD PERSONNEL WERE INSTRUCTED NOT TO USE 10 TO 12 CPS REJECTION CRITERIA.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-5104 PWR SUPPLY AND LOW PASS FILTER-ARAI	FAR 69-41780-813	680408	FACTORY	YES NO	YES 60/C	890488
FAILURE MODE-FAIL TO OPERATE. THE POWER SUPPLY AND LOW PASS FILTER NETWORK WAS REJECTED FOR LACK OF PLUS OR MINUS 2 1V DC OUTPUT. FUNCTIONAL TESTING OF THE SUPPLY BY FAILURE ANALYSIS REVEALED NO OUTPUTS FOR (+) 20.6 VOLTS DC AND (+) 19.9 VDC. OUTPUTS FOR THE PLUS OR MINUS 21.3 VOLT DC WERE NORMAL FAILURE WAS TRACED TO DIODES CR-15 AND 16 WHICH WERE REINSTALLED BACKWARD.							
CORRECTIVE ACTION-EMPLOYEE RESPONSIBLE WAS INSTRUCTED IN HOW TO CORRECTLY ASSEMBLE THE NETWORK. EOP 35J.873 WAS REVISED TO ASSURE THE POWER SUPPLY AND FILTER NETWORK IS TESTED ACCORDING TO BOTH SECTIONS OF THE LOP THIS ASSURES THIS TYPE OF DISCREPANCY WILL BE DETECTED BEFORE POTTING.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-5100 FILTER CIRCUIT BOARD	FAR 69-41711-5	3001 66J329	FACTORY	YES NO	YES 60/C	890492
FAILURE MODE-OUT OF SPECIFICATION. THE MOD-DEMULATOR FILTER CIRCUIT BOARD WAS REJECTED WHEN IT WAS SUSPECTED 28 VOLTS DC HAD BEEN APPLIED TO THE INPUT SIGNAL LINE. ANALYSIS SHOWED THE CIRCUIT BOARD WAS NOT DAMAGED BY THE APPLICATION OF 28-VOLTS DC TO ITS INPUT LINE.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION WILL BE TAKEN BECAUSE THIS CIRCUIT BOARD DID NOT FAIL.							
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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-3101 SIGNAL AMPLIFIER CIRCUIT BOARD	FAR 69-41911-603	5001 660329	FACTORY	YES NO	YES 60/C	690491
FAILURE MODE-OUT OF SPECIFICATION. THIS SIGNAL AMPLIFIER CIRCUIT BOARD WAS REJECTED WHEN IT WAS SUSPECTED 28-VOLT D C HAD BEEN APPLIED TO THE OUTPUT SIGNAL LINE. ANALYSIS SHOWED THE CIRCUIT WAS NOT DAMAGED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION WILL BE TAKEN BECAUSE THIS CIRCUIT BOARD DID NOT FAIL.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	CT-98-04-267 CONNECTOR, ELECTRICAL	FAR	660302		YES NO	BENDIX PT08P-12-39/30 3	690473
FAILURE MODE-ELECTRICAL OPEN CAUSED BY DISPLACED CONNECTOR CLIP SPRING.							
CORRECTIVE ACTION-RECOMMEND VENDOR CORRECTIVE ACTION TO PREVENT RECURRENCE. ALERT 60/C RECEIVING INSPECTION OF THE PROBLEM.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	574-3-66-35	FLIGHT	7SD 660219	ABRESB-1	YES NO		690366
FAILURE MODE-PROPELLANT SLOSH RATES DURING BOOSTER PHASE WERE HIGHER THAN NORMAL-REACHING 16.6 DEG PER SEC IN ROLL- 8.5 DEG PER SEC IN PITCH AND 5.7 DEG PER SEC IN YAW.							
SYSTEM EFFECT-ERRATIC OPERATION ALTHOUGH VEHICLE STABILITY WAS MAINTAINED, SLOSH RATES OF THIS MAGNITUDE COULD POSSIBLY EXCEED THE LIMITS OF STABILITY.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3102 SERVOAMPLIFIER	FAR 27-44335-3	303D 660217	WTR	YES NO	60/C	690490
FAILURE MODE-ERRATIC OPERATION. SERVOAMPLIFIER WAS REJECTED WHEN THE BOOSTER 2 ENGINE STEPPED OUT TOWARD THE PITCH AXIS STOP. RETESTING DID NOT RESULT IN A REPETITION OF THE PROBLEM. FAILURE ANALYSIS DID NOT FIND ANY FAILURE.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN AS THE FAILURE REPORTED WAS NOT CONFIRMED AND NO CAUSE FOR THE FAILURE REPORTED WAS FOUND.							

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DIFFICULTIES REVIEW-AUTOPLOTT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOTT-SQUARE-A/B FILTER AND SERVOAMP	SLV-98-04-5112 TAN-FILTER INTEGRATOR-TRANSISTOR	FAR 89-41742-801	880214	FACTORY	YES	50/C NO	890482
FAILURE MODE-INTERMITTANT OPERATION-THE INTEGRATOR WAS REJECTED DUE TO OUT OF TOLERANCE AND DRIFTING MICRO- AMMETER CURRENT READING. FAILURE WAS TRACED TO AN INTERMITTANT TRANSISTOR Q-1 WHICH HEALED ITSELF DURING FAILURE ANALYSIS. (HUGHES MAT334) DATE CODED 218 (SIXTEENTH WEEK OF 1962)							
CORRECTIVE ACTION-NO CORRECTIVE ACTION AS THE EXACT CAUSE OF THE TRANSISTOR FAILURE WAS NOT FOUND. RECEIVING INSPECTION IS NOW PERFORMING 100 PERCENT TESTING OF ALL HUGHES MAT334 TRANSISTOR NEW AND THOSE IN STOCK. REF ECP 7777.							
AUTOPLOTT-SQUARE-A/B FILTER AND SERVOAMP	SLV-98-04-9090 SERVOAMPLIFIER, A/P	FAR 89-42000-823	5001 860126	ETR/12	YES	50/C NO	890501
FAILURE MODE ERRATIC OPERATION. INTERMITTANT YAW INTEGRATION WAS OBSERVED IN ALL CHANNELS. THE FAILURE WAS ATTRIBUTED TO AN INTERMITTANT SHORT CIRCUIT OF THE INTEGRATOR CAPACITOR CASES TO THE (-) 21.5 VOLT CIRCUIT BOARD CONDUCTING LAND. SUCH FAILURE IS DUE TO INSULATION TAPE DEGRADATION.							
CORRECTIVE ACTION-MANUFACTURING SPEC 25.356 WAS REVISED TO DEFINE THE REQUIREMENTS FOR INSULATION TAPE INSTALLATION. ALSO SPEC. 0-79015 WAS REVISED TO INSURE CORRECT INSULATION IS APPLIED.							
AUTOPLOTT-SQUARE-A/B FILTER AND SERVOAMP	CT-19-04-241 SERVOAMPLIFIER, A/P	FAR 55-41000-827	640111	FACTORY	YES	50/C NO	890472
FAILURE MODE-ERRATIC OPERATION. BOOSTER 2 SWITCH ACTUATOR WAS REPORTED HARD OVER IN FINAL CHECKOUT VIA TELEMETRY DAY A. THIS OCCURRENCE WAS NOT VISUALLY CONFIRMED AT THE SITE. FAILURE ANALYSIS WAS UNABLE TO CONFIRM SERVO AMP FAILURE							
CORRECTIVE ACTION-NONE FAILURE WAS NOT CONFIRMED.							
AUTOPLOTT-SQUARE-A/B FILTER AND SERVOAMP	SLV-19-04-5092 CIRCUIT BOARD, INSULATION	FAR 89-42000-2	851201	FACTORY	YES	50/C NO	
FAILURE MODE-OUT OF TOLERANCE. SERVOAMPLIFIER YAW INTEGRATOR WAS REJECTED FOR LOW PLUS INTEGRATION AND NO MINUS INTTEGRATION. FAILURE COULD NOT BE CONFIRMED HOWEVER THE ELECTRICAL PAPER TAPE COVERING THE (-) 21 VOLT CONDUCTING LAND WAS DEGRADED WITH THE CELLULOSE FIBER EXPOSED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN AS EXACT CAUSE OF FAILURE WAS NOT FOUND. HOWEVER SURVEY INSTRUCTIONS 1 1-66 AND 18-66 WERE ISSUED TO HELP RESOLVE THE ELECTRICAL PAPER TAPE DEGRADATION PROBLEM, RECOMMENDING ALL AUTOPLOTT							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CANISTERS BE RETURNED TO CONVAIR FOR REMOVAL.							890495
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-5011-P SERVOAMPLIFIER	FAR 27-44333-3	631123	WTR	YES NO		891007
FAILURE MODE-OUT OF SPECIFICATION. IT WAS REPORTED THE BOOSTER 2 YAW SIGNAL ON A SANSORN RECORDING LAGGED THE BOOSTER 1 YAW SIGNAL BY 0.8 SECOND DURING THE AUTO-PILOT LOOP TEST. SUBSEQUENT RUNS OF THE TEST FAILED TO DUPLICATE THE INITIAL PROBLEM.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							890376
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	3LY-98-04-5087-B YAW INTEGRATOR	FAR 89-42900-3	5001 631103	ETR 1R	YES NO		
FAILURE MODE-ERRATIC OPERATION. YAW INTEGRATOR PROBLEM RESULTED IN ABNORMAL BOOSTER ENGINES YAW MOVEMENT DURING 6VR 0 TORQUE TEST PORTION OF FACT. SECOND PROBLEM OCCURRED DURING PLUS COUNT AT 125 SECONDS WHEN YAW INTEGRATOR FAILED FOR SHORT TIME. THIS FAILURE WAS PARTIALLY VERIFIED DURING FAILURE ANALYSIS WHEN THE YAW D-C AMPLIFIER SIGNAL, IN SATURATED CONDITION AND WITH INTEGRATOR ACTIVE, INTERMITTENTLY DROPPED OUT FOR 2 MINUTES. EXACT CAUSE OF DROPOUT NOT DETERMINED.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT DETERMINED.							890322
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	B2-4MC-01-B3	COMPOSITE-PPD/DPL	850 630922	WTR	YES NO		
FAILURE MODE-DROFT. LANDLINE INSTRUMENTATION INDICATED A SMALL SHIFT OF APPROXIMATELY 1 TO 1.5 DEG ON VERNIER NO 2 POSITION DURING THE DPL. TELEMETRY DATA INDICATED A DIFFERENCE OF APPROXIMATELY + 4.5 DEG IN THE VERNIER NO 2 POSITION FROM THE LAST CHECKOUT LOOP TEST AND THE DPL.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-PRIOR TO FLIGHT THE SMALL SHIFT WAS CORRECTED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	3LY-99-01-5061P TRANSISTOR 2N5284	FAR 89-41000-3	630815	FACTORY	YES NO	RAYTHEON	
FAILURE MODE-FAIL TO OPERATE. DURING PERIODIC RE-EVALUATION TESTS (PRT) PER PROCEDURE 89F 2686-1, PARAGRAPH 8.4.1, THE YAW CHANNEL HAD NO SIGNAL OUTPUT. THE REPORTED FAILURE WAS CONFIRMED AND WAS ATTRIBUTED TO TRANSISTOR 911 15N284A 1. THE TRANSISTOR FAILED DUE TO CONTAMINATION OF THE JUNCTION WITH UNKNOWN IMPURITIES AND MOST PROBABLY AGGRAVATED BY HUMIDITY AT THE SAME LEAD AND SATURATING THE DEBICANT, RESULTING IN HIGH REVERSE CURRENT CHARACTERISTICS. IT IS C							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
<p>ONCLUDED THAT THE FRACTURE OF THE GLASS HEADER AND THE ENTRAPMENT OF CONTAMINANTS OCCURRED DURING THE INITIAL MANUFACTURING CYCLE.</p>						
<p>CORRECTIVE ACTION-PER PAR 31V-89-04-8083, CONVAIR ISSUED SURVEY INSTRUCTIONS 75-83 TO REMOVE RAYTHEON 2N328A TYPE 7 TRANSISTORS AND REPLACE THEM WITH SPERRY VELOD 2N328A TRANSISTORS.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOPAMP	6972698-1 AMPLIFIER, TRANSISTOR-2N328A	UTP-PRT	650913	60/C	YES	RAYTHEON NO 2N328A
<p>FAILURE MODE- FAIL DURING OPERATION. DURING X-AXIS TEMPERATURE-ALTITUDE-VIBRATION, THE SUSTAINER YAW SERVOAMPLIFIER OUTPUT DROPPED TO ZERO AT APPROXIMATELY 30 CPS OF VIBRATION. EXCESSIVE TRANSISTOR LEAKAGE CURRENT CAUSED BY SEAL FR ACTURE AT THE BASE LEAD OF A 2N328A CAUSING MOISTURE CONTAMINATION. TEST SPECIMEN 69-41000-5, 3/N 306-008</p>						
<p>CORRECTIVE ACTION-SURVEY INSTRUCTIONS 75-83 TO REMOVE RAYTHEON 2N328A TRANSISTORS AND REPLACE WITH SPERRY PARTS. EC P 3304 WILL BE INCORPORATED AS A FINAL CORRECTIVE ACTION.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOPAMP	6974683 TRANSFORMER	UTP-PAT 69-41000-3	650831	60/C	YES	60/C NO
<p>FAILURE MODE- FAIL DURING OPERATION. DURING 15TH CYCLE OF PAT VERIFICATION Y-AXIS R/S VIBRATION. THE PLUS AND MINUS 21 VDC POWER SUPPLY FAILED DUE TO A BROKEN WIRE AT THE TERMINAL 1 OF TRANSFORMER 12 ON POWER SUPPLY BOARD ABAS 127-41783-31. TEST SPECIMEN 336-0008, REFER TO FAILURE LOG 351-3-011.</p>						
<p>CORRECTIVE ACTION-ECP 7631 IS IN WORK TO ACCOMPLISH REDESIGN OF AN POWER SUPPLY MODULE. ECP 3304 IS BEING INCORPORATED AS A TEMPORARY FIX.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOPAMP	6974683 TRANSISTOR/OUTCODE	FAR 69-41751-801	650830	FACTORY	YES	NO
<p>FAILURE MODE-OUT OF TOLERANCE. THE ASSEMBLY FAILED EQUIPMENT OPERATION PROCEDURE (EOP) 330-277 PARAGRAPH 4.1.2 DUE TO EXCESSIVE NOISE AND OSCILLATIONS. NOISE SIGNALS UP TO 150 MILLIVOLTS PEAK TO PEAK WERE OBSERVED. SPECIFICATIONS LIMIT OSCILLATIONS TO LESS THAN ONE-FIFTH OF ONE CYCLE WITH AMPLITUDES NOT TO EXCEED 100 MILLIVOLTS. THE REPORTED FAILURE WAS NOT CONFIRMED BECAUSE THE CIRCUIT BOARD, AS RECEIVED, HAD THREE DEFECTIVE COMPONENTS. TRANSISTORS 2-1 (2N4981), 2-2 (2N4981) AND A ZENER DIODE CR-2 (1N4618). TRANSISTOR 2-1 WAS SHORT-CIRCUITED. TRANSISTOR 2-2 WAS SHORT-CIRCUITED. THE ZENER DIODE CR-2 EXHIBITED HIGH REVERSE CURRENT LEAKAGE BELOW THE ZENER VOLTAGE. REPLACEMENT OF THESE COMPONENTS RESTORED NORMAL OPERATION AND ALSO REDUCED THE NOISE LEVEL TO EOP SPECIFICATIONS. IT IS BELIEVED THAT HIGH NOISE OUTPUT EXISTED. A PROCEDURAL ERROR DAMAGED THREE COMPONENTS BEFORE THE ASSEMBLY WAS REJECTED FOR FAILURE ANALYSIS.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-RAR 8LV-99-04-6087 WAS ISSUED RECOMMENDING THAT THE DESIGN GROUP INITIATE A REVISION TO EOP 330-277 WITH SPECIFIC INSTRUCTIONS CONCERNING WHAT TO DO IN REMOVING A SERVOAMPLIFIER ASSEMBLY WITH HIGH NOISE OR HIGH FREQUENCY OSCILLATION PROBLEMS.						993058
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	8LV-99-04-5083-7 SERVOAMPLIFIER-CIRCUIT BOARD	FAR 89-41751-001	850830	FACTORY	YES	60/C NO	992936
FAILURE MODE-OUT OF TOLERANCE. IT WAS REPORTED THIS SERVO AMPLIFIER FAILED EOP 330-277 PARAGRAPH 4.1.2- DUE TO EXCESSIVE NOISE AND OSCILLATIONS. NOISE SIGNALS OF 190 MILLIVOLTS PEAK TO PEAK WERE OBSERVED. THE CIRCUIT BOARD AS RECEIVED HAD THREE DEFECTIVE COMPONENTS. REPLACEMENT OF THESE COMPONENTS RESTORED NORMAL OPERATION AND ALSO REDUCED THE NOISE LEVEL TO EOP SPECIFICATIONS. IT IS BELIEVED A PROCEDURAL ERROR DAMAGED THE THREE COMPONENTS BEFORE THE ASSEMBLY WAS REJECTED FOR FAILURE ANALYSIS.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT CONFIRMED.							999914
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	50/CAG483-001-44/PC-CC-01-0071-015 COMPOSITE-FACTORY GYRO - DISPLACEMENT		7113 850817		YES NO		
FAILURE MODE-OUT OF TOLERANCE. ROLL PROGRAM DURATION (1/3 SECONDS) COULD NOT BE MEASURED DUE TO ROLL DISPLACEMENT BY NO SIGNAL AMPLIFIER SATURATION.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST - COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-COMPOSITE PREPARATION PROCEDURE WAS REVISED TO SET ROLL PROGRAMMER TO 0-4 VAC.							991839
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	89F2656-1 AMPLIFIER, TRANSISTOR	UTP-PAT	850810	60/C	YES	8N329A NO	
FAILURE MODE-OUT OF TOLERANCE. DURING INITIAL PROOF CYCLE FOR PAT VERIFICATION ON THE SERVO AMP, THE PITCH INTEGRAL GAIN WAS 0.140 VOLT/VOLT-SECOND. SPECIFICATION IS 0.134 TO 0.206 VOLT/VOLT-SECOND. THERE WAS EXCESSIVE LEAKAGE CURRENT FROM 81 2N329A PITCH LEFT-OFF FILTER SWITCH 8 ON ADAS ASSY. (27-45738-1) OF 99-41000-3. SEE FAILURE LOG 951-3-0 09.							
CORRECTIVE ACTION-60/C TO PURCHASE PART FROM DIFFERENT VENDOR. P/N 87-95818-002 IS NEW PART TO BE INCORPORATED BY EOP 7777.							

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SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	OTH	VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-5035F AMPLIFIER-CIRCUIT BOARD	FAR 87-41000-883	850809	FACTORY	YES NO	
<p>FAILURE MODE-STRUCTURAL FAILURE. DURING PRODUCTION ACCEPTANCE TEST (PAT) VERIFICATION TESTING THE VERNIER 1 PITCH/ROLL OUTPUT WAS ERRATIC DURING ONE CYCLE. THE FAILURE WAS CONFIRMED AND WAS DUE TO BROKEN CONNECTIONS ON THE PITCH 3 CPS FILTER CIRCUIT BOARD ABAR (P/N 87-41828-1, S/N 23) CAUSED BY NUMEROUS VIBRATION CYCLES DURING THE PAT VERIFICATION PROGRAM.</p> <p>CORRECTIVE ACTION-BAR SLV-99-04-809G WAS WRITTEN REQUESTING REDESIGN OF THE AB MODULE TO ELIMINATE LEAD BREAKAGE DUE TO VIBRATION. ECP 3304 APPROVED 8 SEPT. 1965 PROVIDES FOR FOAMING THE FILTER MODULES AS TO PREVENT COMPONENT LEAD BREAKAGE. ECP 7691 APPROVED 17 AUG. 1965 INITIATES A NEW DESIGN FOR THE POWER SUPPLY MODULE CONSISTING OF A REDESIGNED POWERED MODULE, REDESIGNED CIRCUIT BOARD ASSEMBLIES, AND INCORPORATES SPECIAL QUALITY DIODES AND CAPACITORS.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-3034F CIRCUIT BOARD-DIODE/IN00168	FAR 89-41000-3	850809	FACTORY	YES NO	YES NO
<p>FAILURE MODE-FAIL DURING OPERATION. DURING PRODUCTION ACCEPTANCE TEST (PAT) VERIFICATION, THERE WAS NO BOOSTER ROLL OUTPUT. THE FAILURE WAS CONFIRMED AND WAS CAUSED BY A SHORT-CIRCUITED ZENER DIODE CR-3 (IN00168) ON CIRCUIT BOARD, P/N 87-41328-817, S/N 1310. CAUSE OF THE DIODE FAILURE IS A CONTAMINANT SHORTING THE DIODE SPRING CONTACT TO THE CASE INTERNALLY.</p> <p>CORRECTIVE ACTION-NO CORRECTIVE ACTION.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	69F4883 ZENER DIODE CR3	UTP-PAT CR3	850807	607C	YES NO	YES NO
<p>FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING THE SEVENTH PAT VERIFICATION VIBRATION CYCLE OF THE SERVO AMP IN Y-AXIS, 81 Y/R AND 52 Y/R CHANNELS COULD NOT BE ZEROED WHEN ATTEMPTING TO OBTAIN THE OUTPUT UNBALANCE PARAMETER. THE CR3 DIODE IS ON THE ROLL DC AMPLIFIER POWER SUPPLY (87-41338-817) IN AREA OF 89-41000-3, S/N 308-0008. REF ER TO FAILURE LOG 591-3-007.</p> <p>CORRECTIVE ACTION-A SPECIAL QUALITY DIODE WILL BE INCORPORATED BY ECP 7383 WHEN THE PART IS AVAILABLE.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	87-89-04-227 SERVOAMPLIFIER	FAR 55-41000-825	1310	368	YES NO	YES NO
<p>FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR BOOSTER 2 YAW/ROLL END-TO-END GAIN OUT OF TOLERANCE. FAILURE WAS NOT CONFIRMED.</p>						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SIZE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							894024
	CORRECTIVE ACTION-RECOMMENDED INVESTIGATION OF WALL VOLTAGE GENERATOR PHASE SWITCH, IN THE TEST SET, FOR POSSIBLE MALFUNCTION.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-5030P SERVOAMPLIFIER	FAR 89-42000-3	850730	FACTORY	YES NO		895037
	FAILURE MODE-OUT OF TOLERANCE-DURING FLIGHT CONTROL SYSTEM TESTS, THE YAW INTERACTION GAIN WAS OBSERVED TO BE HIGH A NO OUT OF TOLERANCE. THE FAILURE WAS NOT CONFIRMED AND NO CAUSE FOR THE REPORTED FAILURE COULD BE FOUND.						
	CORRECTIVE ACTION-NONE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-5032P CIRCUIT BOARD CAPACITOR	FAR 89-41403-1	850727	FACTORY	YES NO	YES SANGAMO	895039
	FAILURE MODE-ERRATIC OPERATION. THE ELAPSE-TIME MODULE INTERMITTENTLY INTERRUPTED THE 400-CYCLES-PER-SECOND POWER. THE FAILURE WAS CONFIRMED AND WAS DUE TO AN INTERMITTENTLY OPEN-CIRCUITED CAPACITOR (C-3).						
	CORRECTIVE ACTION-RAR SLV-99-04-8059 WAS WRITTEN REQUESTING THE VENDOR TO IMPROVE QUALITY-CONTROL AND BONDING TECHNIQUES TO ASSURE PROPER BONDING OF THE CAPACITOR LEADS TO THE FOIL. RAR SLV-99-04-8061 WAS WRITTEN RECOMMENDING THAT CAPACITORS BE SUBJECTED TO EQUIVALENT RESISTANCE TESTS DURING 60/C RECEIVING INSPECTION. SPECIAL TESTS TO DETERMINE THE ACTIVITY OF CAPACITORS TO WITHSTAND THE VIBRATION LEVELS THEY WILL BE SUBJECTED TO DURING NEXT ASSEMBLY. TESTING WAS ALSO REQUESTED.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-5056P AMPLIFIER-UICODE	FAR 89-42000-3	37-01 850726	FACTORY	YES NO		893224
	FAILURE MODE-ELECTRICAL SHORT. DURING PERFORMANCE OF PROCEDURE 89-92020, PARAGRAPH 9.3.9, IT WAS REPORTED THAT THERE WAS NO BOOSTER ROLL SIGNAL OUTPUT. THE REPORTED FAILURE WAS CONFIRMED AND WAS DUE TO SHORT-CIRCUITED ZENER DIODES CR-10, CR-11, CR-12, AND CR-13 (851CS) IN THE ROLL D-C AMPLIFIER P/N 87-41358-025, S/N 4100101. THE EXACT CAUSE OF THE ZENER DIODE FAILURE IS NOT KNOWN.						
	CORRECTIVE ACTION-NONE CORRECTIVE ACTION.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	N2-30-04-5030P CIRCUIT BOARD-RESISTOR	FAR 87-44335-5	759D 850803	WTR	YES NO	RESISTANCE PRO DUCTS CORP	
	FAILURE MODE-ERRATIC OPERATION. THE BOOSTER 2 PITCH OUTPUT WAS REPORTED 30 PERCENT LOW FOR 1.5 SECONDS DURING A LAUNCH COUNTDOWN LOOP TEST. THEN IT RETURNED TO NORMAL. THE REPORTED FAILURE WAS CONFIRMED AND WAS DUE TO AN INTERMITTENT TYPE RESISTOR (861 P/N 86-75078-028 IN THE SERVOAMPLIFIER SWITCH AND RUNNING ASSEMBLY P/N 87-41383-803, S/N 405-						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
0003. ONE OF THE END TAB CONNECTIONS INSIDE THIS RESISTOR HAD NEVER BEEN SOLDERED.						
CORRECTIVE ACTION-RAN N2-90-04-8091 WAS WRITTEN REQUESTING CONVAIR DESIGN ACTION TO REEVALUATE THE POSITION TAKEN BY REPORT 558-84-0628 WHICH ATTEMPTS TO STATISTICALLY NEGATE THE SERIOUSNESS OF THIS RESISTOR PROBLEM SINCE THIS LATEST FAILURE OCCURRED DURING A MISSILE LAUNCH COUNTDOWN.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A1-402-00-259	COUNTDOWN	2990 630604	WTR	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. IMPROPER DISCRETE SIGNALS WERE INDICATED ON THE LAP DURING A LOOP TEST (82 PITCH AND GIMBAL TEST).						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.						
VEHICLE EFFECT-COUNTDOWN ABORTED.						
CORRECTIVE ACTION-UNKNOWN.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	LV-98-04-5013F CIRCUIT BOARD INTEGRATOR CAPACITOR 27-41000-881	FAR	284D 850420	ETR-12	YES NO	
FAILURE MODE-OUT OF TOLERANCE. THE SERVOAMPLIFIER WAS IR/D FOR NON-LINEAR ROLL INTEGRATION OUTPUT. THE FAILURE WAS PROBABLY DUE TO INSUFFICIENT CONDITIONING OF THE INTEGRATING CAPACITOR. TEST PROCEDURES CALL FOR CONDITIONING THE INTEGRATING CAPACITOR BEFORE DOING INTEGRATING TEST.						
CORRECTIVE ACTION-PARAMETERS DOCUMENT 88-00703-1 REVISED BY CIC 07966 TO STRENGTHEN REQUIREMENTS FOR CONDITIONING INTEGRATING CAPACITORS.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	N2-A9-04-5009-P TRANSFORMER	FAR 27-44833-3	3030 850311	FACTORY	YES AC ELECT. NO	
FAILURE MODE-FAIL DURING OPERATION. A/P SERVOAMPLIFIER WAS IR/D WHEN B-1 ENGINE WENT HARD OVER. FAILURE ANALYSIS FOR UND TRANSFORMER T-1 (UP/H 27-04183-3) (AC ELEC.3704) HAD FAILED CAUSING NUMEROUS OTHER COMPONENTS TO BURN-OUT OR SHORT.						
CORRECTIVE ACTION-SURVEY INSTRUCTION 81133-64 ISSUED 22 OCT. 1964 IS STILL IN EFFECT TO REMOVE ALL AC ELEC. MAGNETIC COMPONENTS NOT IDENTIFIED WITH A DOUBLE 60/C ACCEPTANCE STAMP.						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	69C2496.2 CR-8 DIODE	UTP-181	690309	60/C	YES NO	GENERAL ELECTRIC IC	695932
FAILURE MODE-OPEN-ELECTRICAL-DURING PRT X-AXIS TEMPERATURE-VIBRATION, MINUS 80VDC POWER SUPPLY BECAME ERRATIC DUE TO BROKEN ANODE LEAD OF CR-8 DIODE ON URSAL POWER SUPPLY MODULE. REFER TO FAILURE LOG NUMBER 558-3-010.							
CORRECTIVE ACTION-1M558 DIODES TO BE REPLACED WITH 1M540 DIODES (P/N 69-65110-1). ECPT681 SUBMITTED TO REDESIGN POWER SUPPLY MODULE AND USE FORM WAS APPROVED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SLV-99-04-4290F MODULATOR ASSEMBLY INDUCTOR	FAR 27-41351-827	7401	FACTORY	YES NO		695963
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED WHEN THE AC CONVERTER OUTPUT VOLTAGE WAS EXCESSIVE. FAILURE WAS ATTRIBUTED TO A DEFECTIVE OXIDE, WHICH WAS SHORT CIRCUITED INTERNALLY.							
CORRECTIVE ACTION-NONE. EXACT CAUSE OF SHORT CIRCUIT COULD NOT BE DETERMINED AND THE VENDOR IS NO LONGER IN BUSINESS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	LV-49-04-4968F SERVOAMPLIFIER TRANSISTOR	TAP 27-41000-881	2640	FACTORY	YES NO	60/C	695992
FAILURE MODE-OUT OF TOLERANCE. UNIT WAS REJECTED DURING FINAL VEHICLE CHECKOUT WHEN THE YAW INTEGRATOR HOLDING TIME FROM POSITIVE WAS EIGHT TIMES LONGER THAN FROM NEGATIVE. THE MINOR PROBLEM WAS ATTRIBUTED TO A TRANSISTOR WITH AN INVERTED GAIN OF LESS THAN 1.							
CORRECTIVE ACTION-NONE. THIS IS FIRST SUCH CASE REPORTED, AND IS CONSIDERED MINOR.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SLV-99-04-4990F SERVOAMPLIFIER	FAR 27-41351-813	7104	FACTORY	YES NO		695985
FAILURE MODE-ERRATIC OPERATION. UNIT WAS REJECTED FOR BEING THE SOURCE OF HIGH FREQUENCY OSCILLATIONS IN THE YAW CHANNEL. FAILURE WAS CONFIRMED. HOWEVER, CAUSE OF FAILURE WAS NOT DETERMINED BECAUSE THE FAILED SAMPLE WAS INADVERTENTLY DESTROYED DURING THE ANALYSIS.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE WAS NOT DETERMINED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	LV-99-04-4992F SERVOMPLIFIER TRANSISTOR	FAR 27-41361-803	1960 650127	FACTORY	YES NO	895986
FAILURE MODE-OUT OF SPECIFICATION. UNIT REJECTED FOR BOOSTER 2 YAW OUTPUT BEING OUT OF SPECIFICATION. FAILURE ATTRIBUTED TO A SHORTED TRANSISTOR, CAUSED BY AN ACCIDENTAL SHORT-CIRCUITING OF THE OUTPUT TO GROUND.						
CORRECTIVE ACTION-FACTORY PERSONNEL WERE CAUTIONED TO PROPERLY USE TEST EQUIPMENT.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	SLV-90-04-4976F SERVOMPLIFIER DIODE	FAR 69-41000-803	7401 650120	WTR	YES NO	895043
FAILURE MODE-ELECTRICAL OPEN. UNIT WAS REJECTED FOR FAILURE DURING MARCHE CHECK. FAILURE WAS ATTRIBUTED TO DAMAGED ZENER DIODES IN THE PITCH DC AMPLIFIER. THE DIODE DAMAGE INDICATED EXTERNAL MISAPPLICATION OF HIGH VOLTAGE, HOWEVER NO EVIDENCE OF A PROCEDURAL ERROR COULD BE FOUND.						
CORRECTIVE ACTION-WTR WAS ADVISED OF RESULTS OF THE INVESTIGATION AND THAT MISAPPLICATION OF POWER APPEARED TO BE THE CAUSE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	A-90-04-4979F SERVOMPLIFIER DIODE	FAR 27-75094-1	1720 650116	B-3	YES NO	895044
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR AN OVERSHOOT OF THE YAW CHANNEL IN RESPONSE TO A STEERING COMMAND.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	SLV-AP-04-4968F SERVOMPLIFIER DIODE	FAR 69-41000-803	7110 641216	FACTORY	YES NO	895493
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED DURING VEHICLE CHECKOUT FOR BOOSTER-2 YAW HULL VOLTAGE WHICH WAS REPORTED TOO HIGH. CAUSED BY AN OPEN CIRCULATED ZENER DIODE OPEN CIRCUIT, CAUSED BY EXCESSIVE WELDING HEAT USED IN ATTACHING AN INTERNAL LEAD WIRE, RESULTING IN LEAD WIRE FAILURE.						
CORRECTIVE ACTION-Texas Instruments advised visual examination of 1000 units revealed no hot welds. AND THAT EVERY EFFORT WOULD BE MADE TO IMPROVE THEIR WELDING TECHNIQUE.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SLV-99-04-4967 SERVOAMPLIFIER TRANSISTOR	FAR 89-41000-803	7110 641216	FACTORY	YES NO		891331
FAILURE MODE-OUT OF TOLERANCE. HIGH SUSTAINER PITCH POSITIVE VOLTAGE. RESULT OF A HUGHES MAT7334 TRANSISTOR FAILURE CAUSED BY LOOSE GOLD FLARE CREATING A SHORT RESULTING IN EXCESSIVE COLLECTOR TO EMITTER CURRENT.							
CORRECTIVE ACTION-HUGHES CHANGED IN 1960 AND 1962 TO ALLEVIATE THIS TYPE OF FAILURE. THIS TRANSISTOR MANUFACTURED PRIOR TO 1962.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	60/A-BN784-043/P6-LO-03-0ACA FLIGHT	95-41002-839	1430 641211	WTR 140	YES NO	50/C	894785
FAILURE MODE-OUT OF TOLERANCE. DIVERGENT PROPELLANT SLOSH FROM 140 SECONDS TO BECO (149 SECONDS). MAXIMUM ZERO-TO-P EAR RATE VALUES JUST PRIOR TO BECO WERE 1.1 DEGREES PER SECOND IN PITCH, 2.1 DEGREES PER SECOND IN ROLL, AND LESS THAN 0.1 DEGREE PER SECOND IN YAW.							
SYSTEM EFFECT-OPERATION TOO HIGH-BOOSTER ENGINE DEFLECTIONS IN PITCH WERE 0.7 DEGREES HALF-AMPLITUDE. BOOSTER ENGINE MOVEMENTS IN ROLL WERE NEGLIGIBLE. VERNIER MOVEMENT REACHED 13 DEGREES PEAR TO PEAR IN ROLL.							
VEHICLE EFFECT-NONE. PROPELLANT SLOSH CONDITION MIGHT HAVE DEVELOPED INTO A VEHICLE STABILITY OR STRUCTURAL PROBLEM IF BECO HAD BEEN DELAYED SIGNIFICANTLY.							
CORRECTIVE ACTION-END-TO-END POSITION AND RATE GAINS DURING FLIGHT PERIOD FROM 110 SECONDS TO BECO WERE REDUCED ON SUBSEQUENT CENTAUR BOOSTERS. REFERENCE CIC 07818 AND ECP 7922R1.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	CT-99-04-191 AMPLIFIER, TRANSISTOR-2M498	FAR 27-41361-807	1480 641116	FACTORY	YES NO	RHEEN	892759
FAILURE MODE-OUT OF TOLERANCE. THE SERVOAMPLIFIER ASSEMBLY WOULD NOT MALL DURING AN ELECTRICAL CHECKOUT. THE REPORTED FAILURE WAS CONFIRMED AND WAS DUE TO FAULTY TRANSISTORS Q-4 AND Q-5 (BOTH RHEEN 2M498). TRANSISTOR Q-4 HAD HIGH OUTPUT-OF-TOLERANCE LEAKAGE CURRENT FROM COLLECTOR-TO-BASE. TRANSISTOR Q-5 HAD RELATIVELY HIGH SATURATION RESISTANCE. NO CONTAMINANTS OR MANUFACTURING DEFECTS WERE APPARENT IN EITHER TRANSISTOR.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION OR RECOMMENDATION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SLV-99-04-4967 SERVO AMPLIFIER CAPACITOR	FAR 27-41361-813	7106 641116	FACTORY	YES NO	50/A	
FAILURE MODE-ERRATIC OPERATION. VERNIER AMPLIFIER OUTPUT COULD NOT BE CONTROLLED. FAILURE IS ATTRIBUTED TO A DIELECTRIC BREAKDOWN IN THE BASE CAPACITOR.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-PER DESIGN MEMO 556-3-65-03 DATED JANUARY 9, 1965 IN ANSWER TO RAR 8LV-99-04-8002, THIS ONE FAILURE IS NOT BASIS FOR AN IMMEDIATE COMPONENT CHANGE.						891440
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4938P	FAR 27-41000-877	2880 641113	12	YES YES	50/A	890786
FAILURE MODE-OUT OF TOLERANCE. BOOSTER ENGINE ROLL INTEGRATION RECORDINGS DISPLAYED AN ABRUPT CHANGE IN SLOPE. CAUSE IS NOT KNOWN. ANALYSIS DID NOT REVEAL ANY FAILURE.							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. NO CORRECTIVE ACTION WAS TAKEN.							892632
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-49-04-4939P SERVOAMPLIFIER RESISTOR	FAR 27-41000-931	121P 641103	FACTORY	YES NO		
FAILURE MODE- OUT OF TOLERANCE. SUSTAINER YAW CHANNEL INDICATED A LOW GAIN. CAUSE WAS AN INTERMITTENT OPEN-CIRCUIT WIREWOUND RESISTOR. THE RESISTOR WAS NOT PROPERLY SOLDERED.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	9LV-99-04-4931P CAPACITOR	FAR 27-75040-7	641014	FACTORY	YES NO	GUDEMAN 2MF-2708-5	892643
FAILURE MODE-OPEN, ELECTRICAL. CAPACITOR WAS INTERMITTENTLY OPEN DURING VIBRATION. CAUSED BY A DEFECTIVE INTERNAL BO NO BETWEEN CAPACITOR FOIL AND AN END CONTACT.							
CORRECTIVE ACTION-THE VIBRATION TEST PROCEDURES WERE REVISED TO DETECT THIS FAILURE MODE AT PRODUCTION TESTING LEVEL. THESE ARE: EOP 330.760 CHANGE 1, EOP 330.291C CHANGE 27, ECP 330.333A CHANGE 9, ECP 330.343A CHANGE 9 AND EOP 330.652 NO CHANGE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	60/AAAGUGS-001-22/FC-CO-01-0302-008 RELAY	COMPOSITE-FACTORY	1740 641006		NO NO		
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. AN AGE PROGRAMMED ROLL BIAS EXERCISE (STATIC GAIN) DURATION WAS 1.4 SECONDS LONGER THAN EXPECTED. FAULTY AGE UNLATCH RELAY WAS THE CAUSE OF THIS DISCREPANT CONDITION.							
SYSTEM EFFECT-OPERATION TOO LONG.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST COMPOSITE TESTING REQUIRED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-REPLACED AGE UNMATCH RELAY.							008372
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	CT-98-04-177 CIRCUIT BOARD TRANSISTOR	FAR 55-41000-811	641002	ETR	YES	RAYTHEON	008710
FAILURE MODE-FAIL DURING OPERATION. THE BOOSTER 2 ENGINE WAS DRIVEN HARD OVER IN NEGATIVE YAW. THE FAILURE WAS CONFIRMED AND IS ATTRIBUTED TO A BROKEN EMITTER-TO-BASE BOND IN A 2N328A TRANSISTOR IN THE ASAR SERVOAMPLIFIER CIRCUIT BOARD ASSEMBLY.							
CORRECTIVE ACTION-SURVEY INSTRUCTION 86-64 WAS INITIATED, VIA RELIABILITY ACTION REPORT SLV-99-04-3916 ASKING FOR REMOVAL OF ALL RAYTHEON 2N328A AND 2N329A TRANSISTORS FROM STOCK. SURVEY COMPLETION ON JUNE 30, 1964 RESULTED IN 1451 TRANSISTORS SCRAPPED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SLV-09-04-4843-F AMPLIFIER RESISTORS	FAR 27-41643-813	640921	FACTORY	YES		003194
FAILURE MODE-OUT OF TOLERANCE. THE A/P SERVOAMPLIFIER EXHIBITED A HIGH NOISE LEVEL (80 MV P-P) WHEN TESTED AT 180 D EGREES F VS A MEASUREMENT OF LESS THAN 10 MV POINT TO POINT. POINT TO POINT TESTING REVEALED THE HIGH NOISE LEVEL WAS CAUSED BY A MARGINAL SELECTION OF CALIBRATION RESISTORS WHICH WHEN PLATED TO 180 DEGREES F CAUSED THE GAIN OF TRANSISTOR R 9-2 TO INCREASE FROM 43 TO 64. THIS CAUSED THE AMPLIFIER TO BECOME SLIGHTLY UNSTABLE WITH RESULTANT HIGH NOISE OUTPUT. CAREFUL RECALIBRATION OF THE AMPLIFIER ASSEMBLY RESULTED IN STABLE OPERATION UNDER ALL TEST CONDITIONS.							
CORRECTIVE ACTION-FACTORY PERSONNEL WERE ADVISED OF THE IMPORTANCE OF CAREFUL SELECTION OF CALIBRATION RESISTORS. TECHNIQUES FOR THIS TASK WERE DISCUSSED TO ELIMINATE MARGINAL STABILITY OF AMPLIFIER ASSEMBLIES.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SLV-20-04-4890-F T-2 TRANSFORMER	FAR 89-41000-3	640917	FACTORY	YES	A.C.ELECTRONIC	003799
FAILURE MODE-FAIL DURING OPERATION. THE AUTOPILOT SERVOAMPLIFIER FAILED WHEN BOOSTER 1 ENGINE WENT HARD OVER ABOUT THE YAW AXIS. TEST ANALYSIS ISOLATED THE CAUSE TO BOOSTER 1 YAW SERVOAMPLIFIER CIRCUIT, TRANSFORMER T2. THE FAILURE WAS CAUSED BY AN UNSOLDERED CONNECTION ON THE SECONDARY WINDING OF THE TRANSFORMER.							
CORRECTIVE ACTION-IN REPLY TO FAR SLV-90-04-3982 RECOMMENDATIONS, AIR FORCE TX OF 9-30-64 DIRECTS GO/A TO QUALIFY ADDITIONAL VENDORS TO REPLACE AC ELECTRONICS. WHOSE PERFORMANCE HAS BECOME UNACCEPTABLE. ECP 7880 WAS PREPARED TO ACCOMPLISH THIS TASK. IN THE INTERIM, BY USAF DIRECTIVE, ONLY AC PARTS MANUFACTURED UNDER 100 PERCENT GO/A SURVEILLANCE DOUBLE STAMPED PARTS, SHALL BE USED. RETROFIT OF ALL AC ELECTRONICS SINGLE STAMPED PARTS WITH DOUBLE STAMPED PARTS ON MISSILES 7104, 7106 AND 7110 WAS ALSO ORDERED BY USAF.							

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SYSTEM	TEST/REPORT NUMBER	VEHICLE	PRI	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	DATE DIF	OTH	VENDOR PART NO
	PART NUMBER	TIME DIF		
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	BLV-90-04-4897-F TRANSFORMER	840917	FACTORY	NO TRANSONIC
<p>FAILURE MODE-FAILED DURING OPERATION. EXCITATION TRANSFORMER APPEARED TO HAVE BEEN SHORTED EXTERNALLY WHEN A CABLE CLAMP CUT INTO THE CONNECTING WIRES. THESE WIRES WERE FOUND BURNED. TEST ANALYSIS OF THE TRANSFORMER FOUND NO DAMAGE. THE TRANSFORMER WAS THEN OPERATED UNDER LOAD FOR 10 MINUTES WITH NO MALFUNCTIONS OBSERVED.</p>				
<p>CORRECTIVE ACTION-NO CORRECTIVE WAS TAKEN AS THIS WAS A SECONDARY FAILURE AND PERSONNEL AT WTR REPAIRED THE CABLE.</p>				
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	BLV-99-04-4892-F AMPLIFIER CAPACITOR	840912	FACTORY	YES GUDENAM
<p>FAILURE MODE-ERRATIC OUTPUT. THE MODULATOR ASSY EXHIBITED ERRATIC OUTPUT DURING PRODUCTION VIBRATION IN BOOSTER 2 PITCH/ROLL. TEST ANALYSIS TRACED THE PROBLEM TO CAPACITOR C-2 WHICH HAD A DEFECTIVE INTERNAL BOND OF ONE LEAD TO THE TERMINAL FOIL.</p>				
<p>CORRECTIVE ACTION-EQUIPMENT OPERATIONS PROCEDURES FOR SERVOAMPLIFIERS WERE MODIFIED TO INCLUDE A 3-MINUTE VIBRATION TEST WHILE MONITORING THE OUTPUTS FOR INTERMITTENT CONDITIONS.</p>				
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	27-3741 TRANSFORMER	840911	60/C	YES A.C. ELECTRONI
<p>FAILURE MODE- OUT OF SPECIFICATION. THERE WERE SEVERAL BUBBLES COMING FROM A SMALL HOLE ON THE BOTTOM OF THE TEST 3 SPECIMEN (LOT 69), DURING EACH CYCLE OF THE IMMERSION TEST. THIS WAS CAUSED BY INCORRECT MANUFACTURING PROCEDURES.</p>				
<p>CORRECTIVE ACTION-CARR 3546 SENT TO VENDOR. CARR 3547 SENT TO 60/A RECEIVING INSPECTION TO ALTER TEST METHODS SO SE ALTH "FAILURES WILL BE DETECTED. REF' FPR 3185 BMT.</p>				
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	NO-90-04-4840F SERVO AMPLIFIER RESISTOR	27-04179-3	2450	YES
<p>FAILURE MODE- FAIL DURING OPERATION. DROP OUT OF BOOSTER ROLL SIGNAL. FAILURE ATTRIBUTED TO AN INTERMITTENTLY OPEN-CIRCUITED WIREWOUND RESISTOR. AN INTERMITTENTLY OPEN-CIRCUITED TRANSISTOR WAS ALSO FOUND. THIS WAS CAUSED BY A BROKE IN BOND BETWEEN THE EMITTER LEAD AND EMITTER DOT.</p>				
<p>CORRECTIVE ACTION-VENDOR REPLY TO RAR 9-98-04-3791 STATES THAT RESISTOR FAILED SINCE ITS TEMPERATURE WAS RAISED ABC WE MAXIMUM SPECIFIED. USE OF 221 DEGREE C MELTING SOLDER WOULD BE BETTER THAN USING WELD TERMINATIONS. IN REPLY TO R</p>				

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AR-A-98-04-3979 BOTH DESIGN AND PARTS ENGINEERING CONCUR WITH REPORT 556-64-0268 DATED NOVEMBER 25, 1964. PER PAR 84 R A-99-04-3916, SURVEY 86-64 COMPLETED ON JUNE 30, 1964 SCRAPPED ALL RAYTHEON 2N528A TRANSISTORS. NEW SOURCE IS SPEC BY SEMICONDUCTOR. IN ANSWER TO PAR A-90-04-3039 A REQUEST TO REPLACE 2N528A AND 2N329A WITH A SPECIAL PURPOSE TRANSISTOR WAS DENIED.							090957
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	27A3741 TRANSFORMER	UTP-PET 27-04179-5	040902	60/C	YES A.C. ELECTRONIC NO CS AC3893		091106
FAILURE MODE-OUT OF SPECIFICATION. DURING REALING TEST, PARA. 4.2, THERE WAS A CONTINUOUS FLOW OF BUBBLES FROM A 24 ALL HOLE IN THE BOTTOM OF THE TEST SPECIMEN FROM LOT 68. THIS WAS CAUSED BY INCORRECT MANUFACTURING PROCEDURES.							
CORRECTIVE ACTION-CARR 5548 SENT TO VENDOR. CARR 5547 SENT TO GO/A RECEIVING INSPECTION TO ALTER TEST METHODS SO SEALING FAILURES WILL BE DETECTED. REF' FPR 5165 SMT.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	NZ-99-04-4866-F AMPLIFIER CAPACITOR	FAR 27-41359-5	640828	FACTORY	YES GUDERMAN NO		094182
FAILURE MODE- OUT OF TOLERANCE. THE ROLL-MODULATOR ASSY (-) ROLL CHANNEL COULD NOT BE MULLED DURING STATIC GAIN TESTS AFTER 9 MINUTES OF PRODUCTION VIBRATION TESTING. INVESTIGATION FOUND CAPACITOR C-2 EXHIBITING INTERMITTENT OPEN CIRCUIT OPERATION WHEN SUBJECTED TO SHOCK OR PULL. THIS WAS CAUSED BY PARTIAL SEPARATION OF THE COIL LEAD CONTACT TO THE ALUMINUM FOIL WITHIN THE CAPACITOR DUE TO INADEQUATE SOLDER BONDING.							
CORRECTIVE ACTION-PAR NZ-99-04-3963 WAS ISSUED RECOMMENDING FOIL CAPACITORS BE SUBJECTED TO RADIO FREQUENCY RESONANCE TESTS IN RECEIVING INSPECTION. THIS WILL NEED OUT CAPACITORS WITH MARGINAL STRUCTURAL WEAKNESSES. THE VENDOR WAS ALSO REQUESTED TO IMPROVE HIS BONDING TECHNIQUE TO INSURE AGAINST INTERNAL LEAD TO FOIL CONNECTION BREAKDOWN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-98-04-4878-F DIODE CR-5-AMPLIFIER	FAR 27-41000-865	640818	FACTORY	NO		091294
FAILURE MODE-OPEN ELECTRICAL. VERNIER 2 YAW CHANNEL OF A/P SERVOAMPLIFIER FAILED DUE TO A BURNED OPEN DIODE IN OUTPUT CIRCUITRY CR-5. DIODE DAMAGE RESULTED FROM A SHORT CIRCUIT OF VERNIER 2 + OUTPUT LINE OF SERVOVALVE-TO-GROUND EXTERNAL TO THE AUTOPILOT SERVOAMPLIFIER PACKAGE. AN ADDITIONAL FAILURE FOUND IN THE SUSTAINER PITCH SWITCH-AND-SUMMING NETWORK WAS DUE TO A DEFECTIVE TRANSISTOR, WHICH APPARENTLY DETEIORATED WITH TIME.							
CORRECTIVE ACTION-TEST RANGE PERSONNEL ADVISED THAT SERVO- SERVOAMPLIFIERS OUTPUTS COULD BE ACCIDENTALLY SHORT-CIRCUITED TO GROUND DURING TROUBLESHOOTING OR MONITORING PROCEDURES USING A SANDWICH PLUS. SURVEY INSTRUCTION 86-64 REMOVED ALL COMMERCIAL TYPE 2N528A AND 2N329A RAYTHEON TRANSISTORS IN GO/A STOCK.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-99-04-4887-F AMPLIFIER, RESISTOR	FAR 27-41000-931	119F 640817	FACTORY	YES NO	INTERNATIONAL RESISTOR	093192
FAILURE MODE- OUT OF TOLERANCE. THE AUTOPILOT SERVOMP AMPLIFIER REPORTEDLY FAILED WHEN BOOSTER 2 PITCH STATIC GAIN WAS LOW OUT OF TOLERANCE. TEST ANALYSIS ISOLATED THE DISCREPANCY TO BOOSTER 2 PITCH SERVOMP AMPLIFIER. AMPLIFIER 2 ON CIRCUIT BOARD 27-41361-803. RESISTOR R12 WAS CAUSE OF FAILURE DUE TO FLAKING OFF OF A PORTION OF THE METAL FILM INCREASING THE RESISTANCE FROM 3.18 TO 7.2 KILOHM. FAILURE OF THE RESISTOR WAS PROBABLY CAUSED DURING MANUFACTURE BY CONTAMINATION OF THE CERAMIC BODY OR METAL FILM MATERIAL.							
CORRECTIVE ACTION-VENDOR WAS ADVISED OF THIS AND HE CONCURRED BY ADVISING 60/C THAT ALL CRITICAL AREAS OF PROCESSING 6 UP TO AND INCLUDING FILM EVAPORATION WERE EXCLUDED IN A CLEAN ROOM WHERE WHITE ROOM PROCEDURES WERE ADOPTED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	N2-99-04-4875-F BINARY ASSEMBLY	FAR 27-41498-1	640808	FACTORY	YES NO	60/C	091898
FAILURE MODE-OUT OF TOLERANCE. THE BINARY ASSY FAILED FIVE DIFFERENT STEPS OF AUTOMATIC TEST. THIS WAS CAUSED BY INTERNALLY INTERCHANGED LEAD WIRES 0 AND 2 DURING SETUP IN POTTING MOLD.							
CORRECTIVE ACTION-NEW INJECTION-MOLD PLASTIC DIE THROW-AWAY POTTING MOLDS WERE PROCURED TO HELP ELIMINATE MANUFACTURING ERRORS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	N2-99-04-4888-F AMPLIFIER CAPACITOR	FAR 27-41645-1	640804	FACTORY	YES NO	GUDEMANN	093553
FAILURE MODE-OUT OF TOLERANCE. DURING PRODUCTION VIBRATION TESTING, VERNIER 1 YAW ROLL OF SERVOMP AMPLIFIER PKG. WENT OUT OF TOLERANCE. ANALYSIS FOUND CAPACITOR C-1 HAD A DEFECTIVE BOND OF ONE OF THE END SPIRAL-TO- FOIL SECTION BONDS WITHIN THE CAPACITOR. THE DEFECTIVE BOND WAS A RESULT OF INADEQUATE BOND DESIGN PRESENT IN ALL GUDEMANN CAPACITORS OF EXTENDED FOIL CONSTRUCTION WITH CASE DIAMETERS OF 0.312 INCH AND SMALLER PRODUCED BEFORE NOV. 1961.							
CORRECTIVE ACTION-CAPACITORS REMOVED FROM STOCK WITH CASE CODES 145 AND LOWER DESIGN OF CAPACITOR WAS MODIFIED BY GUDEMANN CO. TO ASSURE SOLDER FLOW AROUND SPIRAL CONNECTOR WITHIN CAPACITOR. MEMO AMS-REL-64-1-FA-1 OF 31 JAN. 64 RECOMMENDS NO CAPACITOR CHANGE BE INSTITUTED UNTIL FURTHER INVESTIGATION IS PERFORMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-99-04-4870-F PITCH SWITCH AND SUMMING NETWORK-R RESISTOR	FAR 27-41000-933	640804	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE. DURING CHECKOUT OF AUTOPILOT SERVOMP AMPLIFIER, THE BOOSTER 2 PITCH END-TO-END GAIN MEASUREMENT WAS OUT OF TOLERANCE. THIS WAS CAUSED BY INTERMITTENTLY OPEN-CIRCUITED RESISTOR. THE RESISTOR FAILED BECAUSE OF AN UNSOLDERED INTERNAL CONNECTION WHICH RESULTED WHEN THE RESISTOR WAS ORIGINALLY SOLDERED TO PRINTED CIRCUIT BOARD. THIS CAUSED INTERNAL SOLDER TO FLOW OUT OF THE RESISTOR.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-RAR A-98-04-3971 OF 23 OCT 1964 REQUESTED THE VENDOR TO USE HIGH MELTING POINT CONNECTIONS FOR ALL INTERNAL RESISTOR CONNECTIONS. RAR A-98-04-3972 OF 23 OCT 1964 REQUESTED QUALITY CONTROL PERSONNEL TO USE HEAT SINKS ON RESISTOR WIRE LEADS WHILE THE LEADS ARE BEING SOLDERED TO PRINTED BOARD CIRCUITS. THE VENDOR INDICATED THEY COULD USE A 221 DEGREE C SOLDER AND QUALITY CONTROL ADVISED THAT HEAT SINKS COULD NOT BE USED WHEN SOLDERING WITH FLOW SOLDER MACHINES. NO FINAL RESOLUTION OF THE PROBLEM WAS INDICATED.						091214
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	FTAB472/P2-4CO-03-250	COMPOSITE-8 FACT	2500 640702	ETR 2	NO NO		097764
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DUE TO LATE MANUAL EJECTION OF UMBILICAL P609, SERVO CANISTER INPUTS REMAINED GROUNDED AND ENGINE RESPONSE TO THE ROLL PROGRAM WAS LATE.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. ROLL PROGRAM GENERATED LATE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4838-F AMPLIFIER-CAPACITOR	FAR 27-41361-809	640626	FACTORY	YES TEXAS NO NT		095350
FAILURE MODE-ERRATIC OPERATION. SERVO AMPLIFIER REPORTEDLY FAILED EOP 330.290.2 WITH NO VERNIER 2 YAW OUTPUT. THIS REPORTED FAILURE WAS NOT CONFIRMED. A FAILURE WAS FOUND, HOWEVER, IN VERNIER YAW 1 SERVOAMPLIFIER ASSY AND WAS ATTRIBUTED TO CAPACITOR C-2. THE TANTALUM SLUG IN THIS CAPACITOR WAS NOT FIRMLY SOLDERED TO THE CAPACITOR CASE THEREBY RESULTING IN INTERMITTENT OPERATION.							
CORRECTIVE ACTION-SURVEY INSTRUCTION 55-64 WAS ISSUED 1 MAY 1964 TO LOCATE AND SCRAP ALL TEXAS INSTRUMENTS SYN TANTALUM CAPACITORS CASE CODED BEFORE 1962. IN REPLY, DESIGN GROUP EXPRESSED OPINION THAT IT WOULD NOT BE NECESSARY TO REPLACE CAPACITORS ALREADY ON CIRCUIT BOARDS AS PRODUCTION VIBRATION TESTS WILL DETECT ANY BAD CAPACITORS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-A9-04-4843-F A/P SERVOAMPLIFIER	FAR 89-41000-3	640622	FACTORY	YES NO		095743
FAILURE MODE-OUT OF TOLERANCE-A/P SERVOAMPLIFIER REPORTEDLY HAD HIGH YAW INTEGRATOR GAIN. EXTENSIVE TESTING DID NOT REVEAL ANY DISCREPANCIES.							
CORRECTIVE ACTION-NONE SINCE FAILURE WAS NOT CONFIRMED.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-49-04-4807-F AMPLIFIER-CAPACITOR	FAR 27-41000-831	118F 840811	FACTORY	YES	60/C	090813
FAILURE MODE-OUT OF TOLERANCE. DURING CHECKOUT SEVERAL MARCHE CARDS INDICATED NO-GO ON THE SUSTAINER PITCH STATIC & AIMS. FAILURE WAS CAUSED BY A MISINSTALLED POLARIZED CAPACITOR ON THE SUSTAINER PITCH SERVOAMPLIFIER.							
CORRECTIVE ACTION-NONE. UNIT WAS MANUFACTURED TWO YEARS PRIOR TO THE FAILURE AND WAS AN INSPECTION OVERSIGHT.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4831-F DC AMPLIFIER ASSY./TRANSISTOR	FAR 27-41358-817	640803	FACTORY	YES NO		090813
FAILURE MODE-FAIL DURING OPERATION THE DC AMP ASSEMBLY FAILED EOP 330-280 PARAGRAPH 1.8. THE REPORTED FAILURE WAS CONFIRMED AND IS ATTRIBUTED TO TRANSISTOR Q-3 WITH A LARGE REVERSE CURRENT LEAKAGE. CAUSE OF THIS IS UNKNOWN. HOWEVER, ANY APPRECIABLE LEAKAGE OF EITHER Q-2, Q-3 OR Q-4 IN THIS AMPLIFIER IS MAGNIFIED BY THE GAIN OF EACH STAGE, RESULTING IN SATURATION OF THE AMPLIFIER.							
CORRECTIVE ACTION-SURVEY INSTRUCTION (S1) 7-43 OF 15 FEB. 1963 WAS ISSUED WHICH CALLED FOR REMOVAL OF ALL TEMPERATURE-SENSITIVE TRANSISTORS (VENDOR) IN STOCK, IN ALL CIRCUIT BOARDS, AND IN ALL TOP PACKS. ALL 2N2929A TRANSISTORS RECEIVED FROM THE VENDOR ARE TO BE TESTED TO LATEST REVISION OF ADDENDUM OF RELIABILITY TEST REQUIREMENT (RTI) 4-513. TCR 8340 RECOMMENDED USE OF FAIRCHILD TRANSISTOR SICES AS A REPLACEMENT FOR 2N2929A. THIS WAS REJECTED BY ENGINEERING REVIEW BOARD DUE TO COST AND INSUFFICIENT REJECTION RATE OF SPERRY UNITS PURCHASED SINCE AUG. 1964.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-49-04-4845-F AMPLIFIER	FAR 27-41000-831	118F 840803	FACTORY	YES NO		090813
FAILURE MODE- FAIL DURING OPERATION. A/P SERVO AMPLIFIER REPORTEDLY FAILED DURING PERFORMANCE OF PROCEDURE 27-98403 - 1 WHEN THE VERNIER 2 PITCH OUTPUT INDICATED A NO-GO. TESTING OF THE DEFECTIVE AMPLIFIER REVEALED TRANSISTORS Q2 AND Q3 FAILED AND ZENER DIODE CR-2 SHORT CIRCUITED. CAUSE OF THE SEMICONDUCTOR FAILURES CANNOT BE CONCLUDED FROM SPECIAL TESTS THAT AN INTERNAL DEGRADATION OF TRANSISTOR Q2 OCCURRED, RESULTING IN A SHORT CIRCUIT AND CAUSING EXTENSIVE COMPONENT DAMAGE.							
CORRECTIVE ACTION-NONE. EXACT CAUSE OF FAILURE WAS NOT KNOWN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-4842-F	FAR 27-41358-828	640821	FACTORY	YES NO	60/C	
FAILURE MODE-FAILED DURING OPERATION. THE MODULATOR ASSEMBLY REPORTEDLY FAILED WHEN A NO-OUTPUT INDICATION WAS INDICATED. EXTENSIVE ANALYSIS AND TESTING COULD NOT CONFIRM THE REPORTED DISCREPANCY. FURTHER INVESTIGATION DID NOT REVEAL ANY REASON FOR AN ERRONEOUS REJECTION.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE, AS THE FAILURE WAS NOT CONFIRMED.							095667
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	27-3382 TRANSFORMER	UTP-PET 27-04179-5	840518	60/C	YES A.C. ELECTRONIC NO CS AC3693		091104
FAILURE MODE-SHORT- /ELECT./, DURING INSULATION RESISTANCE TEST, PARA. 4.9, SECONDARY WINDINGS OF LOT 63 TEST SPECIMEN WAS SHORTED TOGETHER GIVING INSULATION RESISTANCE FAILURE BETWEEN BOTH SECONDARY WINDINGS AND THE MOUNTING MEANS. THIS WAS CAUSED BY POOR VENDOR QUALITY AND PRODUCTION CONTROL.							
CORRECTIVE ACTION-PER J.R. DEMPSEY'S MEMO PD MAY 1964, THE PROBLEM OF UNSATISFACTORY VENDOR PERFORMANCE IS BEING RESOLVED BY VICE PRESIDENT COMMITTEE AND CUSTOMER. PET LOT 63 WAS REJECTED AND RETURNED TO VENDOR PER SURVEY INSTRUCTION W 72-64. REF: FR 634-8-304.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	27-3384 TRANSFORMER	UTP-PET 27-04179-5	840416	60/C	YES A.C. ELECTRONIC NO CS AC3693		091103
FAILURE MODE-OUT OF SPECIFICATION, DURING PARA. 4.8.A, OVERLOAD TEST, THE TEST SPECIMENS NORMALLY SMOOTH AND SHINNY SURFACE WAS ROUGH AND DULL IN TEXTURE. THESE APPEARANCES INDICATE THAT THE SPECIMEN WAS OVER-HEATED.							
CORRECTIVE ACTION-TEST CONTINUED ON SAME SPECIMEN AND ADDITIONAL TESTS ON ANOTHER SPECIMEN FROM LOT 51. ADDITIONAL TESTS REVEALED NO EVIDENCE OF FAILURE. THE ONLY EVIDENCE OF OVERHEATING WAS CHANGE IN APPEARANCE OF THE OUTER SHELL OF THE TRANSFORMER. THE LOT WAS ACCEPTED.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SLV-99-04-4832-F DC AMPLIFIER/TRANSISTOR	FAR 27-41359-811	840410	FACTORY	YES NO		096120
FAILURE MODE-DRIFT, OUTPUT VOLTAGE REPORTEDLY DRIFTED OUT OF TOLERANCE WHILE TESTING AT ELEVATED TEMPERATURES. TEST ANALYSIS CONFIRMED THE FAILURE AND ATTRIBUTED IT TO EXCESSIVE COLLECTOR LEAKAGE IN TRANSISTOR 8-4. THE CONDITION OCCURS AT ELEVATED TEMPERATURES AND ALLOWS THE OUTPUT TO DRIFT. EXPERIENCE REVEALS THE AMPLIFIER CIRCUIT IS EXTREMELY SENSITIVE TO LEAKAGE EFFECTS IN 8-3 AND 8-4 TRANSISTORS. INADEQUACY OF THE SPEC. IN SPECIFYING ICED AT ELEVATED TEMPERATURES IS USUALLY THE REASON GIVEN FOR THE FAILURE.							
CORRECTIVE ACTION-REDESIGN OF AMPLIFIER WAS REQUESTED STATING THAT 2N2954 TRANSISTORS WERE TO BE REPLACED WITH A SPECIAL LOW-LEAKAGE UNIT. TCP 8340 WAS APPROVED AND COMPLETED DEC. 1964 RECOMMENDING USE OF 81023 TRANSISTOR IN A REPORT TO 840. 840 INDICATED THEY WERE WAITING FOR ECP SUBMITTAL. A REQUEST TO PROCEED WITH PREPARATION OF AN ECP WAS SUBMITTED TO SLV ENG. REVIEW BOARD. THIS WAS REJECTED DUE TO THE COST ASPECT, THE FEW NUMBER OF MISSILES INVOLVED, A NO INSUFFICIENT REJECTION RATE OF SPERRY UNITS PURCHASED SINCE AUG. 1964.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	DATE TIME DIP	RIE OTH	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	27-3381 TRANSFORMER	UTP-PET 27-04180-5	640301	60/C	YES	A.C. ELECTRONIC NO CS 3094	081110	
FAILURE MODE-OPEN /ELECT./ THERE WAS AN OPEN WINDING BETWEEN PINS 1 + 2 OF THE TEST SPECIMEN FOLLOWING THE THERMAL SHOCK TEST, PARA. 4.7.A. THIS WAS NOTED DURING ELECTRICAL CONTINUITY TEST. INVESTIGATION REVEALED THAT THE CONNECTION WAS NOT SOLDERED.								
CORRECTIVE ACTION-SURVEY 72-84 REJECTED ALL A.C. ELECTRONICS PARTS THAT WERE ON HOLD IN RECEIVING INSPECTION OR NOT IN PRODUCTION. VENDOR NOW PERFORMING 100 PERCENT INSPECTION OF ALL SOLDERED CONNECTIONS. ALSO 60/A RESIDENT OPT 1 IN SECTION IS NOW REQUIRED ON ALL P.O.S EFFECTIVE APPROXIMATELY 1 JUNE 1964. REF: FR-654-2-234A.								
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4722F AMPLIFIER/CAPACITOR	FAR 27-41381-5	640310	FACTORY	YES	NO	084067	
FAILURE MODE-ERRATIC OPERATION. THE AMPLIFIER ASSEMBLY WAS REJECTED WHEN THE VERNIER 2 PITCH OUTPUT OF THE SERVOCAN METER WAS INTERMITTENT AFTER A TWO HOUR WARM UP. THE FAILURE WAS TRACED TO A DEFECTIVE CAPACITOR C1 IN THE AMPLIFIER ASSEMBLY. THE CAPACITOR WAS A TEXAS INSTRUMENTS DRY TANTALUM TYPE 50M WHICH HAD A DEFECTIVE BOND BETWEEN THE SOLDER AND THE ANODE. THE CAPACITOR WAS MADE WHEN THE VENDOR USED FLUXLESS SOLDER PREFORMS. FLUX IS PRESENTLY USED IN SOLDERING THE ANODE TO THE CANE.								
CORRECTIVE ACTION-SURVEY INSTRUCTION 55-84 REMOVED CAPACITORS MADE WITH FLUXLESS PREFORMS FROM STOCK.								
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4780F DIODE	FAR 87-19003-007	640310	FACTORY	YES	TRANSISTOR NO	081083	
FAILURE MODE-UPON ELECTRICAL, SIX UNITS WERE REJECTED FOR INDICATIONS OF OPEN CIRCUITS. FAILURE IS ATTRIBUTED TO A BREAK BETWEEN THE EXTERNAL LEAD AND THE LEAD ATTACHED TO THE CRYSTAL. THIS WAS THE RESULT OF A MANUFACTURING DEFICIENCY.								
CORRECTIVE ACTION- NONE. DIODE NO LONGER MANUFACTURED CURRENT DIODES USE A NEW METHOD OF ATTACHING THE LEAD TO THE CRYSTAL, ELIMINATING THE BONDING PROBLEM.								
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4781F DC AMPLIFIER TRANSISTOR	FAR 27-41338-803	640306	FACTORY	YES	NO		
FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED FOR EXCESSIVE NOISE LEVEL ON THE OUTPUT DC SIGNAL. FAILURE ATTRIBUTED TO A HIGH AC AMPLIFIER GAIN DERIVED FROM HIGH GAIN TRANSISTORS IN THE 8-3, 8-4, OR 8-5 POSITIONS. TWO SIMILAR CASES WERE REPORTED IN FAR 84V- 99-04-4780F AND-4780F.								

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-THE TRANSISTOR SPECIFICATION WAS REVISED TO ALLOW SELECTION OF LOW GAIN UNITS FOR THIS APPLICATION. AND, THE AMPLIFIER DESIGN WAS CHANGED BY LOWERING THE VALUE OF ONE OF THE LAG NETWORK RESISTORS TO ELIMINATE THE OSCILLATION. THE PROBLEM HAS BEEN VIRTUALLY ELIMINATED BY USE OF A SPERRY MILITARY VERSION OF THE TRANSISTOR.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	M2-22-04-4723F AMPLIFIER, DIODE	FAR 27-41843-3	640224	FACTORY	YES NO	
FAILURE MODE-OUT OF SPECIFICATION. THE AMPLIFIER ASSEMBLY WAS REJECTED BECAUSE DIODES CR8, CR9, CR10 AND CR11 WERE SHORTED. CIRCUIT ANALYSIS INDICATED THESE DIODES WOULD BE DAMAGED IF RESISTOR R2 WAS REMOVED FROM THE CIRCUIT WHILE POWER WAS APPLIED. THE ASSEMBLY WAS RECEIVED WITH R-8 AND R6 MISSING. IT WAS SUMMIZED THIS ACCOUNTED FOR THE FAILURE.						
CORRECTIVE ACTION-NONE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	LV-A9-04-4873-F AMPLIFIER	FAR 27-72583-1	350-D 640220	FACTORY	NO YES	
FAILURE MODE-OUT OF TOLERANCE. BOOSTER 2 PITCH MALL WAS OUT OF TOLERANCE BY 2.0 VOLTS WHEN THE EXPECTED VALUE IS IN US CM MINUS 0.25 VOLTS. FAILURE WAS NOT CONFIRMED WHEN USING FACTORY CHECKOUT EQUIPMENT. FAILURE WAS ISOLATED TO DISCREPANCY BOOSTER 2 PITCH ACTUATOR. (SEE IR 978122, FAR LV-A9-04-4709 FOR PRIMARY FAILURE).						
CORRECTIVE ACTION-NONE REQUIRED SINCE THERE WAS NO FAILURE IN THE AUTOPLOT SERVOPAMPLIFIER.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	LV-39-02-4713F TRANSFORMER	FAR 27-04183-1	640212	FACTORY	YES AC ELECTRONICS NO AC3480	
FAILURE MODE- FAIL DURING OPERATION. THE TRANSFORMER FAILED DURING TESTING OF THE NEXT ASSEMBLY, PART NUMBER 27-413 59-803. THE FAILURE WAS CAUSED BY AN UNSOLDERED INTERNAL WIRE SPLIC AT TERMINAL THREE. ADDITIONALLY, THE WIRE SPLIC AT TERMINAL TWO WAS UNSOLDERED.						
CORRECTIVE ACTION-ALL TRANSFORMERS AND CHOKE MANUFACTURED BY AC ELECTRONICS WERE REMOVED FROM STOCK BY SURVEY INST RUCTION 72-64.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	LV-A9-04-4708-F	FAR 27-41800-881	2230 640210	FACTORY	NO NO	
FAILURE MODE-OUT OF EXPECTED TEST VALUE. IT WAS REPORTED THAT THE SERVOPAMPLIFIER GAVE AN UNEXPECTED BOOSTER 1 YAW & ROLL MOVEMENT WHICH WAS INDICATED BY TELEMETRY AND A SARBORN RECORDING AFTER PROGRAMMER RESET. THE PROGRAMMER RESET MOVEMENT WAS APPROXIMATELY +1 DEGREE MAXIMUM FOR 0.3 SECOND. ANALYSIS FOUND NO DISCREPANCIES WITH THE SERVOPAMPLIFIER.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATA /JIP TIME	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
R. IT WAS DETERMINED THAT THE FAILURE SYMPTOM COULD BE EXPECTED TO OCCUR DURING TESTS DUE TO THE CIRCUITRY INVOLVED AND THE SEQUENCE OF TEST OPERATIONS USED ON THE MISSILE.							891284
CORRECTIVE ACTION-FINAL CHECKOUT PERSONNEL WERE INFORMED THAT THE FAILURE SYMPTOM CAN BE EXPECTED TO OCCUR WHEN THE PROGRAMMER IS RESET.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	PR-694896 URASAL POWER SUPPLY BOARD	UTP-SLT 27-41783-3	640131	60/C	YES	60/C NO	899674
FAILURE MODE- FAIL DURING OPERATION. DURING SLT X-AXIS TEMP-VIBRATION, ALL SERVO AMP OUTPUTS DROPPED TO ZERO FOR 0.125 SECONDS DUE TO PINS NO. 15 AND NO. 22 BEING BROKEN ON MALE CONNECTOR OF URASAL SUPPLY BOARD. REFER TO FRR 002A.							
CORRECTIVE ACTION-ECP 7691 TO REDESIGN POWER SUPPLY MODULES AND USE FOAM WAS APPROVED.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	A-99-04-48297 AMPLIFIER VERNIER 2 YAW	PAR 27-41360	640130	FACTORY	YES	60/C NO	895443
FAILURE MODE-ERRATIC OPERATION. THE AMPLIFIER WAS REJECTED BECAUSE THE SERVO AMPLIFIER PACKAGE HAD AN INTERMITTENT VERNIER TWO YAW OUTPUT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	SLV-49-04-4875-F AMPLIFIER, TRANSISTOR	PAR 69-41000-1	640125	FACTORY	YES	NO	894474
FAILURE MODE- FAIL TO OPERATE. THE SERVOAMPLIFIER REPORTEDLY FAILED TO PROVIDE AN OUTPUT FOR THE SUSTAINER ENGINE. ANALYSIS CONFIRMED THE FAILURE AND ATTRIBUTED IT TO TRANSISTOR Q3 (2N489) WHOSE INTERNAL BASE LEAD WAS BURNED OPEN. THE NATURE OF THIS BURNED-OPEN LEAD INDICATED IT WAS CAUSED BY A DISCREPANCY SOMEWHERE ELSE IN THE CIRCUIT. EXTENSIVE TESTING OF THE ASSOCIATED CIRCUITRY DID NOT REVEAL THE CAUSE.							
CORRECTIVE ACTION-NONE.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOPAMP	LV-99-04-4898-F CIRCUIT BOARD TRANSISTORS	PAR 27-41843-807	640123	FACTORY	YES	NO	
FAILURE MODE-OUT OF TOLERANCE. THE D-C AMPLIFIER ASSEMBLY FAILED EQUIPMENT OPERATIONS PROCEDURE 830.287 PARASPARM 8 .55.1 WHICH SPECIFIES THAT THE TOTAL AMPLITUDE OF NOISE BETWEEN 10KC TO 1 MC SHALL NOT BE GREATER THAN 25 MV PEAK-TO-PEAK.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA BOYCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
-PEAK. THIS D-C AMPLIFIER HAD 30 MV PEAK-TO-PEAK. ANALYSIS ATTRIBUTED THE HIGH-FREQUENCY OSCILLATION TO OVERALL HIGH A-C GAIN OF THE TRANSISTORS 81, 82, 83 AND 84, RESULTING IN INTERSTAGE GAINS TWICE THAT OF A NON-OSCILLATING AMPLIFIER.							893731
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4630F AMPLIFIER CIRCUIT BOARD	FAR 27-43510-1	640117	FACTORY	YES NO		891334
FAILURE MODE-OUT OF TOLERANCE. PITCH RATE ENITTER FOLLOWER AMPLIFIER OUTPUT WAS REPORTED DISTORTED. DISCREPANCY COULD NOT BE DUPLICATED DURING ANALYSIS. A BAD SOLDER JOINT WAS FOUND BETWEEN TERMINAL 5 AND THE PRINTED CIRCUIT. AN OPEN CIRCUITED JOINT AT THIS JUNCTION OF THE COMPONENTS COULD CAUSE THE REPORTED FAILURE.							
CORRECTIVE ACTION- NO ACTION WAS TAKEN AS A RESULT OF THIS ANALYSIS. BASED ON FAR NZ-99-04-4439F CORRECTIVE ACTION WAS TAKEN ON OCTOBER 9, 1963 TO COMPLY WITH SPECIFICATION 0-780.3 REQUIRING JOINTS OF THIS TYPE BE SOLDERED FOR GOOD BONDING.							893949
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4579-F CIRCUIT BOARD-FILTER	FAR 27-41359-903	1350 640110	FACTORY	YES NO		
FAILURE MODE-ERRATIC OPERATION. AFTER FIVE MINUTES OF VIBRATION (DURING PRODUCTION VIBRATION TESTING) THE SUSTAINER YAW STATIC GAIN WAS ERRATIC AND WOULD NOT MEET THE MODULATOR-ASSEMBLY. FILTER WAS SUBJECTED TO EXTENSIVE TESTING WITHOUT VERIFYING THE REPORTED FAILURE. THE FOLLOWING CONDITIONS COULD HAVE CAUSED THE FAILURE INDICATION-(1) CONTAMINATED PLUS OR MINUS RECEPTACLE, (2) POOR CABLE CONNECTION FROM TEST SET TO THE TEST SPECIMEN, AND (3) MISINTERPRETATION OF PROCEDURES.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							893129
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4593F CIRCUIT BOARD, TRANSFORMER	FAR 27-41000-931	1990 640115	FACTORY	YES NO		
FAILURE MODE- ERRATIC OPERATION. VERNIER ROLL OUTPUT WAS INTERMITTENT. THIS WAS DUE TO AN INTERMITTENTLY OPEN PRIMARY IN TRANSFORMER T2, P/N 27-04163-1. THE VERNIER ROLL MODULATOR CIRCUIT BOARD.							
CORRECTIVE ACTION-NONE.							

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AUTOPILOT-SQUARE-A/S FILTER AND SERVOAMP	LV-99-04-4632P FILTER, TRANSISTOR	FAR 27-72585-1	2850 640110	2-ETR	YES	60/A NO
<p>FAILURE MODE-ERRATIC OPERATION. A TRANSIENT MOTION OF BOTH BOOSTER ENGINES IN THE PITCH CHANNEL OCCURRED WHENEVER THE AUTO PILOT PROGRAMMER WAS RESET BEYOND 84 SECONDS. THIS WAS CAUSED BY A LEAKY 2N529A TRANSISTOR IN THE PITCH COMPILER FILTER.</p> <p>CORRECTIVE ACTION-DESIGN MEMO 58-30-75 DATED APRIL 21 1964. IN ANSWER TO MAR SLV-99-04-3656 STATED THAT THE LAST SHIPMENT OF COMMERCIAL TYPE 2N529A TRANSISTORS WAS RECEIVED LATE IN 1961. A STOCK INVENTORY DID NOT REVEAL ANY OF THE 2N529A TRANSISTORS. MEMO ALSO STATED THAT THE PRODUCTION VIBRATION TEST SHOULD DETECT DEFECTIVE 2N529A UNITS INSTALLED IN SERVO AMPLIFIERS. SINCE 1961 ONLY THE MILITARY VERSION OF 2N529A HAVE BEEN PROCURED.</p>						
AUTOPILOT-SQUARE-A/S FILTER AND SERVOAMP	LV-99-04-4597 AMPLIFIER/TRANSISTOR	FAR 27-41000-891	2500 640110	FACTORY	YES	NO
<p>FAILURE MODE- FAIL TO OPERATE. THE SERVO CAN WAS REJECTED FROM MISSILE 2500 BECAUSE NO ROLL MOVEMENT OF BOOSTER ENGINE WAS OBSERVED. THE FAILURE WAS CAUSED BY A DEFECTIVE TRANSISTOR 89 IN THE ROLL DC AMPLIFIER, P/N 27-41643-803. THE TRANSISTOR WAS A 2N529A DATE CODED EZE.</p> <p>CORRECTIVE ACTION-NONE. SPERRY QC PROCEDURES IN EFFECT SINCE 1963 SHOULD PREVENT RECURRENCE OF THIS FAILURE.</p>						
AUTOPILOT-SQUARE-A/S FILTER AND SERVOAMP	LV-99-04-4594F FILTER	FAR 27-72585-1	640110	FACTORY	YES	60/C NO
<p>FAILURE MODE-OUT OF TOLERANCE. THE SERVO CAN WAS REJECTED FOR HIGH PITCH STATIC GAIN. THE FAILURE WAS ATTRIBUTED TO CALIBRATION OF THE FILTER NEAR THE UPPER LIMIT PLUS BUILD UP OF TOLERANCES.</p> <p>CORRECTIVE ACTION-NONE.</p>						
AUTOPILOT-SQUARE-A/S FILTER AND SERVOAMP	LV-99-04-4642P CIRCUIT BOARD INDUCTOR/CHOKE	FAR 27-41645-5	640110	FACTORY	YES	60/A NO
<p>FAILURE MODE- FAIL DURING OPERATION. THE PLUS ROLL OUTPUT OF THE MODULATOR ASSEMBLY WOULD NOT NULL WHEN HEAT OR VIBRATION WAS APPLIED. CAUSE OF FAILURE WAS AN INTERMITTENT OPEN CIRCUIT IN CHOKE L-2. INTERNAL WIRE SPLICED CONNECTIONS IN THE CHOKE WERE NOT SOLDERED.</p> <p>CORRECTIVE ACTION-PER MAR LV-99-04-3693 THE SURVEY INSTRUCTION 46-60 WAS ISSUED APRIL 14, 1964 REQUIRING X-RAY FOR ALL 27-04164-5 CHOKE IN STOCK. SURVEY IS IN WORK.</p>						

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AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4633F CIRCUIT BOARD DIODE	FAR 27-41358-5	2430 640109	FACTORY	YES NO	60/A	891494
FAILURE MODE- OUT OF TOLERANCE. MODULATOR OUTPUT BECAME UNBALANCED. THIS WAS CAUSED BY A CRACKED DIODE (CR-13, 1M49 SA) IN THE MODULATOR BRIDGE CIRCUIT. EXCESSIVE CONFORMAL COATING AROUND THE GLASS DIODE MADE IT RIGID. VIBRATION CAUSED THE CRACK.							
CORRECTIVE ACTION-ANSWER TO RAR LV-99-04-3827 DATED JANUARY 6, 1984 STATED THAT BOARD UNITS RETURNED FOR REWORK ARE SUBJECT TO THE NEW APPROVED CONFORMAL COATING PER NS 29-43C. ALL REWORK OR REPAIRS ON BOARDS ARE DONE IN THE BOND ED AREA BY PROPERLY TRAINED PERSONNEL. ANY CIRCUIT BOARD GOING INTO A MODULE IS INSPECTED FOR ACCEPTABILITY INCLUDING VERIFICATION OF ACCOMPLISHING ANY SURVEY INSTRUCTIONS.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4649P AMPLIFIER, TRANSISTOR	FAR 27-41358-803	640102	FACTORY	YES NO	60/A	891833
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. AMPLIFIER FAILED A FILTER SATURATION TEST. CAUSE WAS TWO HEAT SENSITIVE 2N29A TRANSISTORS (Q-3 AND Q-4).							
CORRECTIVE ACTION RAR A-90-04-3639 REQUESTED 60/A DESIGN TO REDESIGN THE AMPLIFIER ASSEMBLY.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4633F AMPLIFIER ASSEMBLY	FAR 27-41843-801	631231	FACTORY	YES NO	60/C	893441
FAILURE MODE-OUT OF TOLERANCE. FILTER SATURATION WAS REPORTED LOW.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4642P SERVO AMPLIFIER DIODE	FAR 27-41358-811	631219	FACTORY	YES NO	60/A	891680
FAILURE MODE-FAIL DURING OPERATION. SERVOAMPLIFIER FAILED THE FILTER GAIN AND SATURATION TEST AFTER 2-1/2 HOURS WAS R-UP. COULD HAVE BEEN CAUSED BY SOLDER GLOBULES FOUND ON ZENER DIODE CR-12. DIODE MANUFACTURED BY TEXAS INSTRUMENTS WAS NOT X-RAYED BY 60/A.							
CORRECTIVE ACTION-IN REPLY TO RAR LV-99-04-3876 60/A ESTABLISHED A PROGRAM ON NOVEMBER 29, 1983 FOR RADIOGRAPHIC INSPECTION OF ALL SEMICONDUCTORS IN 60/A INVENTORY, NOT INSTALLED. THE DIRECTIVE REQUIRED X-RAY INSPECTION OF ANY SEMIC ONDUCTOR USED ON CENTAUR AFTER DECEMBER 18, 1983, AND ON ANY PROJECT EFFECTIVE JANUARY 4, 1984. ALL SUBJECT DIODES WERE X-RAYED, AND THOSE SHOWING METALLIC PARTICLES WERE PURGED FROM STOCK.							

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AUTOPILOT-SQUARE-A/C FILTER AND SERVOMP	NZ-48-04-4538 CIRCUIT BOARD, TRANSFORMER	FAR 27-04189-3	2480 031213	FACTORY		AC ELECTRONICS AC374 CODE 2-3 5	091289
FAILURE MODE-FAIL DURING OPERATION. THE AUTOPILOT SERVOAMPLIFIER FAILED DURING CHECKOUT TESTING WHEN THE BOOSTER 1 PITCH OUTPUT WOULD NOT NULL. THE FAILURE WAS CAUSED BY A TRANSFORMER WITH AN OPEN-CIRCUITED SECONDARY ON THE BOOSTER 1 PITCH SERVOAMPLIFIER CIRCUIT BOARD. SOME INTERNAL WIRE CONNECTIONS OF THE TRANSFORMER WERE NOT SOLDERED AND WERE MAKING ONLY TOUCH CONTACT WHICH OPENED DURING NORMAL OPERATION.							
CORRECTIVE ACTION-THE VENDOR STATED THAT VERY TIGHT SURVEILLANCE OF SOLDERING TECHNIQUES WAS IN PRACTICE TO INSURE FAILURES SUCH AS THIS WILL NOT RECUR. A SURVEY CONDUCTED BY THE VENDORS QUALITY CONTROL DEPARTMENT INDICATED THAT TM IS APPEARED TO BE A RANDOM FAILURE. NO FURTHER ACTION WAS CONSIDERED NECESSARY.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	LV-99-04-4599-F AMPLIFIER/TRANSISTOR	FAR 27-41358-803	031212	FACTORY	YES NO		093389
FAILURE MODE-ERRATIC OPERATION. THE AMPLIFIER FAILED BECAUSE OF AN INTERMITTENT TRANSISTOR IN THE 03 POSITION. THE TRANSISTOR HAD A CRACKED COLLECTOR-BADE JUNCTION. THE TRANSISTOR WAS A RAYTHEON 2N328A.							
CORRECTIVE ACTION-ALL RAYTHEON 2N328A TRANSISTORS WERE REMOVED FROM STOCK BY SURVEY INSTRUCTION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	LV-99-04-4634F AMPLIFIER, SERVO	FAR 27-41361-803	031211	FACTORY	YES 60/C NO		093442
FAILURE MODE-ERRATIC OPERATION-THE AMPLIFIER ASSEMBLY WAS REJECTED WHEN THE SERVO CANISTER GAIN WAS LOW AND FLUCTUATED UNDER MILD SHOCK.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	BLV-99-04-4622F AMPLIFIER, TRANSISTOR	FAR 27-41823-5	031206	FACTORY	YES RAYTHEON NO		093448
FAILURE MODE- FAIL DURING OPERATION. THE SUBASSEMBLY FAILED WHILE INSTALLED IN A SERVO CANISTER. THE BOOSTER 1 PITCH STATIC GAIN SWITCH DID NOT FUNCTION. THE FAILURE WAS CAUSED BY A DEFECTIVE RAYTHEON 2N328A TRANSISTOR. THE EMITTER LEAD WIRE WAS NOT BONDED TO THE TRANSISTOR CHIP.							
CORRECTIVE ACTION-RAYTHEON 2N328A TRANSISTORS WERE REMOVED FROM STOCK BY SURVEY INSTRUCTION 66-64.							

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AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4323-F TRANSFORMER	FAR 27-04139-1	931115	FACTORY	YES AC ELECTRONICS NO AC 3476		993078
<p>FAILURE MODE-SHORT (ELECTRICAL). T1 TRANSFORMER (PART OF THE SERVOAMPLIFIER POWER SUPPLY) REPORTEDLY FAILED IN THE GDC ELECTRONICS MANUFACTURING CHECKOUT AREA WHEN A SHORT BETWEEN THE PRIMARY AND SECONDARY WINDINGS OCCURRED. THE SHORT WAS CAUSED BY PENETRATION OF THE NYLAP TAPE SEPARATOR AND WIRE INSULATION AT A HIGH SPOT IN THE PRIMARY PI-STAIL LEAD. COMPRESSION OF THE INSULATIONS AGAINST THE HIGH SPOT WAS PRODUCED BY PRESSURE FROM THE OVERLAYING SECONDARY WIRE AND STRESSES WITHIN THE MOTTING COMPOUND. UNDER THIS PRESSURE COLD FLOW OF THE INSULATION OCCURRED, RESULTING IN CONTACT OF THE TWO WINDINGS.</p> <p>CORRECTIVE ACTION-AC ELECTRONICS HAS IMPROVED THEIR MANUFACTURING TECHNIQUES IN ORDER TO ELIMINATE THE DISCREPANCY.</p>							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4303-F CIRCUIT BOARD CAPACITOR	FAR 27-41359-801	931115	FACTORY	YES NO		993032
<p>FAILURE MODE- FAIL DURING OPERATION. THE MODULATOR ASSEMBLY FAILED DURING VIBRATION TESTING WHEN THE SUSTAINER YAW STATIC GAINS WOULD NOT NULL. THE FAILURE WAS CAUSED BY AN INTERMITTENTLY OPEN CIRCUITED TANTALUM CAPACITOR (C-3). THE OPEN RESULTED BECAUSE THE INTERNAL TANTALUM LEAD WIRE OF THE CAPACITOR DID NOT HAVE A SOLDER BOND TO THE EXTERNAL TINNED LEAD WIRE.</p> <p>CORRECTIVE ACTION-THE VENDOR STATED THAT PRIOR TO 1962 FLUXLESS SOLDER PREFORMS WERE USED. THE FAILED CAPACITOR WAS MANUFACTURED PRIOR TO 1962. A SURVEY WAS CONDUCTED AND ALL TEXAS INSTRUMENT TANTALUM CAPACITORS CASE CODED OLDER THAN 1962 WERE SCRAPPED.</p>							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-99-04-4394-F SERVOAMPLIFIER/B2 YAW-CAPACITOR	FAR 27-44533-3	931112	FACTORY	YES NO		993047
<p>FAILURE MODE- ERATIC OPERATION. THE SERVOAMPLIFIER ASSEMBLY FAILED IN THE FACTORY WHEN IT WAS REPORTED TO BE HEAT AND VIBRATION SENSITIVE. FAILURE WAS CAUSED BY AN INTERMITTENTLY OPEN-CIRCUITED TANTALUM CAPACITOR (C-1). THE OPEN RESULTED BECAUSE THERE WAS NOT A FIRM SOLDER BOND BETWEEN THE TANTALUM BLUG AND THE CASE.</p> <p>CORRECTIVE ACTION- THE VENDOR STATED THAT PRIOR TO 1962 FLUXLESS SOLDER PREFORMS WERE USED. THE FAILED CAPACITOR WAS MANUFACTURED PRIOR TO 1962. A SURVEY WAS CONDUCTED AND ALL TEXAS INSTRUMENT TANTALUM CAPACITORS CASE CODED OLDER THAN 1962 WERE SCRAPPED.</p>							

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AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	FR-69A2696 CIRCUIT BOARD-CAPACITOR	UTP-PAT 61-34800-113	631101	60/C	YES NO	YES NO
FAILURE MODE-ERRATIC OPERATION. DURING PAT TEMP-VIBRATION (Y-AXIS) SERVO AMP OUTPUT BECAME ERRATIC DUE TO INTERMITTENT OPEN CIRCUIT CAUSED BY POOR SOLDER JOINT BETWEEN LEAD AND FOIL OF CAPACITOR ON BOARD U2A10A1 (P/N 27-41645). REP ER TO FR 047.						
CORRECTIVE ACTION-PRODUCTION LOTS MODIFIED TO MONITOR OUTPUT CHANNEL CONTAINING CAPACITOR DURING PVT. ECP SUBMITTED TO SSO TO REVISE MAKE FROM DRAWING TO INCLUDE SCREENING TESTS SUCH AS THERMAL SHOCK, COLD SOAK, AND EQUIVALENT SERIES RESISTANCE.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-4366-F YAW DC AMPLIFIER ASSEMBLY/TRANSIST 27-41356-803 OR 2-2	FAR 100F C31101	100F C31101	WTR	YES NO	YES NO
FAILURE MODE- OUT OF TOLERANCE. THE AUTOPILOT SERVOAMPLIFIER FAILED DURING MISSILE CHECKOUT WHEN THE B1 AND B2 YAW OUTPUTS WERE NOT BALANCED. THE FAILURE WAS CAUSED BY A HEAT-SENSITIVE 92 TRANSISTOR IN THE YAW DC AMPLIFIER ASSEMBLY.						
CORRECTIVE ACTION-AN ECP WAS PREPARED TO INCORPORATE A MORE RELIABLE REPLACEMENT TRANSISTOR FOR ALL AUTOPILOTS. FURTHER ACTION WAS SUSPENDED BECAUSE OF CONTRACT TERMINATION.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-97-04-4264-F AMPLIFIER ASSEMBLY/TRANSISTOR 9-3 27-41643-803	FAR 631030	631030	FACTORY	YES NO	YES NO
FAILURE MODE-ERRATIC OPERATION. THE AMPLIFIER ASSEMBLY FAILED WHEN ITS OUTPUT BECAME ERRATIC DURING A PRODUCTION VIBRATION TEST. FAILURE WAS CAUSED BY AN INTERMITTENT OPEN IN THE EMITTER-TO-BASE CIRCUIT OF TRANSISTOR 93. THIS RESULTED BECAUSE OF INSUFFICIENT BONDING OF THE EMITTER LEAD WIRE TO THE EMITTER JUNCTION.						
CORRECTIVE ACTION-NONE. THIS WAS THE FIRST KNOWN FAILURE OF THIS TYPE TRANSISTOR FROM THIS VENDOR.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-49-04-4541-F CIRCUIT BOARD	FAR 27-41301-803	631029	631029	YES NO	YES NO
FAILURE MODE-OUT OF EXPECTED TEST VALUE. THE AUTOPILOT SERVOAMPLIFIER WAS REJECTED AFTER THE B2 PITCH STATIC GAIN WAS LOW DURING SYSTEM TESTS. THIS REPORTED FAILURE WAS NOT CONFIRMED A REPLACEMENT SERVOAMPLIFIER OPERATED SATISFACTORILY INDICATING THAT ANY OTHER SYSTEM DISCREPANCY WHICH COULD HAVE CAUSED THE FAILURE MUST HAVE BEEN CORRECTED.						
CORRECTIVE ACTION-NONE. THE CAUSE OF THE FAILURE COULD NOT BE LOCATED.						

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AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-90-04-4487-F AUTOPILOT SERVOAMPLIFIER TRANSISTO R	FAR 55-41000-803	1350 631028	FACTORY	YES NO	WESTRAM NO
<p>FAILURE MODE-OUT OF SPECIFICATION. THE AUTOPILOT SERVOAMPLIFIER REPORTEDLY FAILED AT GO/C FACTORY DURING VEHICLE 1350 CHECKOUT WHEN THE SUSTAINER AND VERNIER YAW OUTPUTS INDICATED EXCESSIVE VOLTAGE OVERSHOOT DURING TESTS. THE FAILURE WAS CAUSED BY TRANSISTOR Q1 (WESTRAM 631028) AS ITS EMITTER-TO-BASE LEAKAGE CURRENT WAS OUT OF TOLERANCE. LEAKAGE WAS CAUSED BY MOISTURE ACTING ON THE INTERNAL ELEMENTS OF THE TRANSISTOR.</p>						
<p>CORRECTIVE ACTION-WESTRAM TRANSISTORS WERE PURGED FROM STOCK AND HUGHES (HAT534) TRANSISTORS WERE USED EXCLUSIVELY. PRIOR TO DATE 620403, WESTRAM (631028) TRANSISTORS WERE CONSIDERED ACCEPTABLE ALTERNATES FOR THE NORMALLY UTILIZED HUGHES (HAT534) TRANSISTORS.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AX83-0003-1350/FC-CO-02-0302-004 SERVOAMPLIFIER	COMPOSITE-FACTORY	1350 631028		YES NO	
<p>FAILURE MODE-ERRATIC OPERATION. THE SUSTAINER AND VERNIER YAW FEEDBACK TRANSDUCERS INDICATED AN IRREGULAR INTEGRATOR ROLLING RESPONSE AT 0.1 SECONDS AFTER STAGING WHEN INTEGRATOR IMPLIGHT MALLING, GAIN CHANGE, VERNIER ACTIVATION AND SUSTAINER ACTIVATION EVENTS TAKE PLACE.</p>						
<p>SYSTEM EFFECT-ERRATIC OPERATION.</p>						
<p>VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. SYSTEMS LEVEL AND COMPOSITE RETESTING REQUIRED.</p>						
<p>CORRECTIVE ACTION-REPLACED SERVO AMPLIFIER PACKAGE.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4500-F MODULATOR ASSEMBLY CIRCUIT BOARD	FAR 27-41359-801	75F 631024	FACTORY	NO NO	
<p>FAILURE MODE-OUT OF TOLERANCE. CIRCUIT BOARD TESTING REVEALED THAT THE NEGATIVE GAIN WAS 2473. SPECIFICATIONS REQUIRE A NEGATIVE GAIN BETWEEN 2473 AND 2523. SUBSEQUENT TESTING CONFIRMED THE FAILURE. HOWEVER, AS TESTING CONTINUED, THE GAIN CAME WITHIN SPECIFICATIONS. THE MODULATOR WAS THOROUGHLY EXAMINED AND NO DISCREPANCIES WERE FOUND.</p>						
<p>CORRECTIVE ACTION-NO CORRECTIVE ACTION REQUIRED.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-90-04-4487-F SERVO-AMPLIFIER/O-RING	FAR 27-72585-1	3500 631022	WTR	YES NO	
<p>FAILURE MODE-EXTERNAL LEAKAGE. DRY NITROGEN (USED FOR CANISTER PRESSURIZATION) LEAKED AROUND THE JAM-NUT ON THE UZ J1 CONNECTOR. LEAKAGE WAS CAUSED BY A DAMAGED O-RING. IT WAS ASSUMED THAT DAMAGE TO THE O-RING OCCURRED BEFORE OR DURING RING INSTALLATION BECAUSE THE TORQUE PAINT AND LOCKWIRE WERE INTACT, AND THE O-RING IS A STATIC SEAL.</p>						
<p>CORRECTIVE ACTION-ASSEMBLY PERSONNEL WERE INFORMED OF THE IMPORTANCE OF DAMAGE-FREE PARTS AND THAT O-RINGS SHOULD BE CLOSELY EXAMINED FOR OBVIOUS DEFECTS AND BE REJECTED IF DAMAGED. NOTE-3500 WAS 1870.</p>						

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AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SLV-99-04-4301-F MODULATOR ASSEMBLY-CAPACITOR	FAR 27-44535-813	831021	FACTORY	NO		890789
<p>FAILURE MODE-OUT OF TOLERANCE. THE MODULATOR ASSEMBLY WAS REJECTED IN THE 60/C ELECTRONICS MANUFACTURING AREA WHEN, DURING VIBRATION TESTING ON THE TOP PACKAGE SERVOMPAMPLIFIER, THE BOOSTER (PITCH 1 + ROLL OUTPUT WOULD NOT NULL, FAIL. THE CAPACITOR WAS OPEN UNDER VIBRATION.</p>							
<p>CORRECTIVE ACTION-GUDENAN CAPACITORS WITH CASE DIAMETERS OF 0.312 INCH AND SMALLER USED IN AIRBORNE AND SOME GROUND EQUIPMENT, WITH CASE CODES OF 149 AND LOWER WERE REMOVED FROM STOCK. ECP 7599 ALLOWED USE OF GUDENAN CAPACITORS WITH CASE CODES OF 148 AND HIGHER ON NEWLY MANUFACTURED UNITS AND REPLACEMENT OF THESE TYPES IN SUSPECT SERVOMPAMPLIFIER PACKAGES. ALSO, SERVOMPAMPLIFIER PROCEDURE WAS MODIFIED TO INCLUDE A 5 MINUTE VIBRATION TEST TO CHECK FOR INTERMITTENTIES.</p>							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	AX83-0003-2330/FC-CO-03-0013-014 SERVOMP-1712	COMPOSITE-FACTORY 27-44535-3	233D 831017		YES 60/C NO		899028
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. NO ENGINE MOVEMENTS IN THE PITCH AXIS WERE EVIDENT DUE TO A FAULTY SERVOMPAMPLIFIER PACKAGE.</p>							
<p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p>							
<p>VEHICLE EFFECT-COMPOSITE RESCHEDULED.</p>							
<p>CORRECTIVE ACTION-THE SERVOMPAMPLIFIER PACKAGE WAS REPLACED.</p>							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	NZ-49-04-4443-F PITCH DEMODULATOR-TRANSFORMER	FAR 27-44535-3	831017	FACTORY	YES NO		892732
<p>FAILURE MODE-FAIL DURING OPERATION. SERVOMPAMPLIFIER WAS REJECTED WHEN NO PITCH CHANNEL OUTPUT WAS OBSERVED DURING COMPOSITE TESTING. TRANSFORMER T-2 ON THE PITCH DEMOD-MOD-FILTER CIRCUIT BOARD (P/N 27-41359-801) WAS FOUND SPLIT OPEN. THE PRIMARY WINDING WAS OPEN-CIRCUITED AND PART OF THE PRIMARY WAS SHORT-CIRCUITED TO THE SECONDARY. CAUSE OF FAIL. THERE WAS INSUFFICIENT IMPREGNATING RESIN IN THE WINDINGS.</p>							
<p>CORRECTIVE ACTION-PROBLEM RECOGNIZED AND CORRECTIVE ACTION TAKEN BY SURVEYS 8/N 118-82 AND 121-82. ALSO SUPPLIERS IN ON USE A COIL BOSSIN WITH PERFORATED FLANGES TO ALLOW ENTRY OF THE IMPREGNATING RESIN TO THE WINDINGS DURING VACUUM IMPREGNATION. MAGNET WIRE USED ON WINDINGS 8-4, 8-5, 9-8, AND 9-10 WAS CHANGED FROM SINGLE-COATED ISOMEL TO DOUBLE-COATED ISOMEL.</p>							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SIZE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	AX03-0003-1090/PC-CO-01-0008-003	COMPOSITE-FACTORY	199D 621016		NO NO		899020
FAILURE MODE-FAIL DURING OPERATION. UNNULLING OF THE PITCH AND YAW INTEGRATORS AT STAGING PLUS 10 SECONDS COULD NOT BE DETERMINED DUE TO AN INCOMPATIBILITY BETWEEN THE G/E AND A/P (AGE) TEST TAPES.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COUNTDOWN OR COMPOSITE DELAYED OR RESCHEDULED-COMPOSITE RETEST WAS REQUIRED.							
CORRECTIVE ACTION-NOT KNOWN-6SE. TEST TAPES MOST PROBABLY WERE REPUNCHED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	LV-98-04-4504-F SERVOAMPLIFIER	FAR 27-41000-851	263D 631003	ETR	YES NO		891196
FAILURE MODE-ERRATIC OPERATION. THE AUTOPILOT SERVOAMPLIFIER REPORTLY FAILED DURING VEHICLE CHECKOUT WHEN THE VERNIER 1 ENGINE FAILED TO RESPOND TO CONTROL SIGNALS FOR 30 TO 40 SECONDS, THEN RESUMED PROPER OPERATION. SUBSEQUENT TESTING FAILED TO REVEAL THE CAUSE, AND THE FAILURE WAS NOT REPEATABLE.							
CORRECTIVE ACTION-THE FAILURE WAS NOT CONFIRMED. HOWEVER, AS A PRECAUTIONARY MEASURE THE ASSOCIATED ACTUATOR ASSEMBLY WAS SENT TO SAN DIEGO FOR FAILURE ANALYSIS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	FTA8254/P2-4CO-02-283	COMPOSITE-J FACT 27-85311-805	283D 630927	12 PLUS277. YES 5	YES YES		897687
FAILURE MODE-FAIL DURING OPERATION. MEASUREMENT 32800 VI YAW, INDICATED LOSS OF VI ENGINE POSITION CONTROL FROM PLUS 277.5 TO 427.7 SECONDS. DATA WAS NORMAL BEFORE AND AFTER THIS INTERVAL.							
SYSTEM EFFECT-ERRATIC OPERATION.							
VEHICLE EFFECT-COMMANDS NOT RECEIVED OR SENT FROM 277.5 TO 427.7 SECONDS.							
CORRECTIVE ACTION-REPLACED SERVO CANISTER AND ENGINE ACTUATOR.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	8P-99-04-4439-F SWITCH AND BURNING NETWORK	FAR 55-41007-3	148D 630927	FACTORY	YES GO/C NO		893459
FAILURE MODE-OUT OF TOLERANCE. THE SWITCH-AND-BURNING NETWORK ASSEMBLY WAS IR/D FOR A REPORTED PRE-STAGE R GAINS OUT OF TOLERANCE. THE NETWORK ASSEMBLY WAS FUNCTIONALLY TESTED BY LAB. AND FACTORY TEST EQUIPMENT. NO DISCREPANCIES WERE FOUND.							
CORRECTIVE ACTION-THE REPORTED FAILURE COULD NOT BE CONFIRMED AND NO CORRECTIVE ACTION TAKEN.							

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	NZ-98-04-4514-F DC-AMPLIFIER ASSEMBLY/ZENER DIODE	FAR 27-41358-003	233D 630924	FACTORY	YES NO	893760
FAILURE MODE-ERRATIC OPERATION. THE DC AMPLIFIER REPORTEDLY FAILED DURING MANUFACTURING TESTING. THE UNIT FOR VEHICLE 233D. THE OUTPUT OF THE UNIT WAS SENSITIVE TO VIBRATION. SUBSEQUENT TESTING REVEALED THAT A LARGE SOLDER BALL LOCATED NEAR THE CASE OF THE ZENER DIODE CR-13 (891C3) CAUSED THE DIODE TO SHORT CIRCUIT WHENEVER THE UNIT WAS TILTED OR SUBJECTED TO VIBRATION STIMULUS.						
CORRECTIVE ACTION-ALL ZENER DIODES (891C3) IN STOCK WERE X-RAYED, AND THOSE SHOWING METALLIC PARTICLES WERE PURGED FROM STOCK. ALL CIRCUIT BOARDS MANUFACTURED WILL CONTAIN X-RAYED ZENER DIODES.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	NZ-98-04-4423-F SERVOMP/AMPLIFIER	FAR 27-44333-3	233D 630923	FACTORY	YES 60/C NO	893401
FAILURE MODE-OUT OF TOLERANCE. SERVOMP/AMPLIFIER SUSTAINED YAW INTEGRATOR GAIN WAS REPORTED TO BE LOW AND NON-LINEAR. A COMPLETE FUNCTIONAL TEST WAS PERFORMED ON THE UNIT. NO DISCREPANCIES WERE FOUND. NON-LINEARITY WAS EXAMINED AND FOUND WITHIN SPEC.						
CORRECTIVE ACTION-NOT A FAILURE. CHECKOUT PROCEDURES WERE REVISED TO MORE CLEARLY DEFINE INTEGRATOR GAIN CHARACTERISTICS. NO FURTHER ACTION TAKEN.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	SP-60-04-4414F YAW AMPLIFIER TRANSISTOR	FAR 27-44333-3	232-D 630923	WTR	YES 60/C NO	893147
FAILURE MODE-OUT OF TOLERANCE. THE SERVOMP WAS 18/0 WHEN THE B-1 ENGINE WENT HARD OVER IN YAW WHEN THE HYDRAULIC PRESSURE WAS APPLIED. FAILURE ANALYSIS FOUND TRANSISTORS Q3 AND Q4 TO BE SHORT CIRCUITED IN THE YAW SERVOMP/AMPLIFIER. PROBABLY CAUSED BY INADEQUATE SHORT CIRCUIT OF THE OUTPUT.						
CORRECTIVE ACTION-PERSONNEL AT SITE NOTIFIED OF THIS FAILURE ANALYSIS. NO FURTHER ACTION TAKEN.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOMP	NZ-98-04-4426-F YAW D-C AMPLIFIER TRANSISTOR	FAR 27-44333-3	233D 630923	FACTORY	YES RAYTHEON NO	
FAILURE MODE-ERRATIC OPERATION. DURING FAILURE ANALYSIS OF ANOTHER PROBLEM, THE YAW CHANNEL DC AMPLIFIER EXHIBITED ERRATIC AND NOISY OPERATION. TRANSISTOR Q4 (RAYTHEON 2N329A) WAS FOUND TO BE SMOKE SENSITIVE. MICROSCOPIC EXAMINATION REVEALED A FRACTURE BETWEEN CRYSTAL AND THE EMITTER DOT.						
CORRECTIVE ACTION-Q3 RAYTHEON TRANSISTORS WERE RETURNED TO RECEIVING INSPECTION AND X-RAYED 101 TRANSISTORS OF THE						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
SINGLE POST DESIGN WERE IR/D (082607). STOCKS WERE COMPLETELY PURGED OF THIS TYPE TRANSISTOR.							082721
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	NZ-49-04-4428-F	FAR 27-44333-3	2330 830923	FACTORY	NO	607C	082720
FAILURE MODE-OUT OF TOLERANCE. SERVOMP IR/D FOR LOW INTEGRATOR GAIN AND NON LINEAR INTEGRAL RAMP FUNCTIONS. THE REPORTED FAILURE RESULTED FROM A MISUNDERSTANDING OF THE CHECKOUT PROCEDURE. WHILE CHECKING THIS REPORTED FAILURE A NO 187 TAN D-C AMPLIFIER WAS IR/D (080432) FOR AN ADDITIONAL ANALYSIS.							
CORRECTIVE ACTION-CHECKOUT PROCEDURE CHANGED TO CLARIFY INTEGRATOR CHARACTERISTICS.							083413
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-90-04-4419-F SERVOMP-TRANSFORMER	FAR 27-41000-831	43F 83/921	WTR	YES NO		
FAILURE MODE- OUT OF TOLERANCE. THE SERVOMP-TRANSFORMER WAS IR/D WHEN BE ENGINE WENT TO THE STOP DURING COUNTDOWN. FAILURE WAS TRACED TO DEFECTIVE SOLDER JOINT AT PIN 1 OF TRANSFORMER T-1.							
CORRECTIVE ACTION-INSPECTORS INFORMED OF THIS FAR AND WERE REQUESTED TO DIRECT THEIR PERSONNEL TO CHECK WOTTE CLOSURE TO ASSURE REQUIREMENTS FOR GOOD SOLDER JOINTS ARE MET.							087237
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	D4960/02-604-00-43 B2 PITCH SERVO AMPLIFIER TRANSFORM T-1081 IN	COUNTDOWN 27-61081	43F 830919	6	YES NO		
FAILURE MODE- FAIL DURING OPERATION. COLD SOLDER JOINT IN BOOSTER 2 SERVOMP-TRANSFORMER WAS CAUSE OF FAILURE							
SYSTEM EFFECT-ERRATIC OPERATION. BOOSTER 2 WENT HARD OVER IN MINUS PITCH AND FAILED TO WALL.							
VEHICLE EFFECT-COUNTDOWN ABORTED.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	CT-98-04-102-F SERVOMP-TRANSFORMER	FAR 38-41000-803	1260 830919	36A	YES NO		
FAILURE MODE-ERRATIC OPERATION. THE ROLL INTEGRATOR EXHIBITED TRANSIENT RESPONSE AND NON LINEAR INTEGRATION ON THE RANDOM RECORDING. DURING PERFORMANCE OF PROCEDURE CIP-AP-0010C. THERE WAS NO DETECTABLE FAILURE OF THIS CANISTER. SINCE THE REPORTED FAILURE MODE WAS NEITHER CERTIFIED NOR DUPLICATED, NO CONCLUSIONS CAN BE MADE AS TO THE PROBABLE CAUSE FOR REJECTION OF THIS AUTOPILOT SERVOMP-TRANSFORMER.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTM	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-TO RESTORE CONFIDENCE AND FLIGHT WORTHINESS OF THIS AUTOPILOT SERVOAMPLIFIER, THE CIRCUIT BOARDS MOST LIKELY TO CAUSE A FAILURE IN THE REPORTED MODE WERE SCRAPPED.						990997
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A463-0037/P2-4CO-01-893 DC AMPLIFIER	COMPOSITE-B FACT 27-41000-891	263D 630818	12	YES NO		997889
FAILURE MODE-FAIL DURING OPERATION. LOSS OF YAW CONTROL TO ALL ENGINES OCCURRED AS A RESULT OF THE FAILURE OF THE YAW DC AMPLIFIER IN THE SERVO-AMPLIFIER.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. NO YAW CONTROL SIGNALS WERE GENERATED.							
VEHICLE EFFECT-COMPOSITE DELAYED.							
CORRECTIVE ACTION-CANISTER REPLACED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	3P-98-04-4434-F AMPLIFIER-DIODE	FAR 27-41000-891	263D 630818	ETR	YES NO		993455
FAILURE MODE- OUT OF TOLERANCE. THE SERVOAMPLIFIER WAS IN/TO FOR NO YAW CHANNEL CONTROL. YAW DC AMPLIFIER HAD FULL NEGATIVE OUTPUT SIGNAL ALL THE TIME. ZENER DIODE CR-5 (TRANSISTOR 2N2034) WAS SHORTED. THE CAUSE OF THE SHORT WAS IMPROPER WORKMANSHIP ON THE PART OF THE DIODE MANUFACTURE.							
CORRECTIVE ACTION-ALL DIODES OF THIS TYPE PLUS SPARES WERE X-RAYED-ACCEPTABLE DEVICES WERE MARKED WITH A RED DOT. MANUFACTURER MADE A DESIGN CHANGE TO A SOLID PREFORMED LEAD IN AUG. 1963 ALL DELIVERIES OF THIS PART SINCE 27 NOV. 1963 ARE OF THE NEW CONSTRUCTION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	3P-98-04-4410-F SERVO AMPLIFIER	FAR 27-41000-891	197D 630827	ETR	YES 60/C NO		993191
FAILURE MODE- OUT OF TOLERANCE. SERVOAMPLIFIER WAS IN/TO BECAUSE B-1 YAW INDICATED 0.9 DEGREES OUT OF TOLERANCE. TLM ALSO INDICATED 0.4 DEGREES OUT. A TEST PANEL MULL LIGHT AND A BANGOR RECORDER ALSO CONFIRMED FAILURE. FAILURE ANALYSIS COULD NOT CONFIRM FAILURE. PACKAGE RESET TO ETR AND CHECKED OUT NORMALLY WHEN INSTALLED ON MISSILE.							
CORRECTIVE ACTION-FAILURE WAS NOT CONFIRMED. NO CORRECTIVE ACTION TAKEN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	P5-4CO-04-197	COMPOSITE-J FACT 27-41000-891	197D 630825	ETR	YES NO		
FAILURE MODE-DRIFT. BOOSTER 1 ENGINE MULL IN YAW/ROLL SHIFTED NEGATIVE ALMOST TO REDLINE DURING COUNTDOWN.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. BOOSTER 1 ENGINE MULL IN YAW/ROLL SHIFTS.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-NONE.							093232
CORRECTIVE ACTION-COMPLETED. COMPOSITE AS IS. THEN INVESTIGATE. SERVO WAS REPLACED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	LV-80-04-4820F	PAR 27-41000-837	3500 030822	WTR	YES NO		094223
FAILURE MODE-DRIFT. BOOSTER 1 ENGINE DRIFTED THREE QUARTERS OF A DEGREE. THE CAN WAS REJECTED BECAUSE SURVEY 29-63 HAD NOT BEEN PERFORMED.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-JA-04-4432-F AMPLIFIER-CAPACITOR	PAR 27-41339	830820	FACTORY	YES NO	YES GUDMAN	093453
FAILURE MODE-ELECTRICAL OPEN. THE MODULATOR ASSEMBLY VAN CHANNEL WOULD NOT HALL PROPERLY DURING PROCD. VIS. TEST. THE SOURCE OF THE DISCREPANCY WAS TRACED TO FILTER CAPACITOR C-1. FOUND TO HAVE AN INTERMITTENT OPEN CIRCUIT. THIS CAP ACITOR (P/N 81-34900-113) MADE BY GUDMAN FAILED DUE TO LACK OF SUFFICIENT SOLDER.							
CORRECTIVE ACTION-SURVEY INSTRUCTION 112-43 AND 9-64 REMOVED ALL SUSPECT CAPACITORS FROM STOCK. ALSO A SEARCH WAS MADE TO DETERMINE IF A HIGH REL. CAPACITOR IS AVAILABLE AS REPLACEMENT. ALSO PVT TIME OF 5 MINUTES WAS ADDED TO THE P PROCEDURES TO LOOK FOR INTERMITTANT OPERATION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-A9-04-4400-F AMPLIFIER, TRANSISTOR	PAR 27-41000-831	113F 830820	FACTORY	YES NO	YES WESTMAN	093073
FAILURE MODE-OUT OF TOLERANCE. DURING FINAL MISSILE CHECKOUT, BOOSTER-1 PITCH AMPLIFIER 27-41361-803 HAD NO OUTPUT. FAILURE WAS CONFIRMED DUE TO LEAKY AND HEAT-SENSITIVE TRANSISTOR 8-2 (CEN1232). CAUSE OF TRANSISTOR FAILURE NOT DETERMINED.							
CORRECTIVE ACTION-60-C ELIMINATED THIS VENDOR AS AN APPROVED SOURCE FOR CEN1232 TRANSISTORS (60/C P/N 87-93900-066). ALL OF THIS VENDOR'S TRANSISTORS WERE PURGED FROM STOCK AND NEVER AGAIN USED ON CIRCUIT BOARDS. TRANSISTORS ALREADY INSTALLED ON BOARDS WILL BE REMOVED UPON FAILURE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-99-04-4457-F CIRCUIT BOARD CONNECTOR	PAR 27-41664-803	830807	FACTORY	YES NO	YES 60/C	
FAILURE MODE-OPEN (ELECT). THE SWITCH-AND-SUMMING NETWORK ASSEMBLY REPORTEDLY FAILED. THERE WAS NO CONTINUITY BETWEEN PINS 17 AND 19. MICROSCOPIC EXAMINATION SHOWED NO COPPER PLATING IN THE PRINTED-CIRCUIT BOARD HOLE FOR PIN 19. THE CAUSE FOR INSUFFICIENT COPPER PLATING IS NOT KNOWN.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-FAILURE DISCUSSED WITH FACTORY AND PACKAGING PERSONNEL BUT NO EXPLANATION OFFERED REGARDING WHAT CAUSED DEFECTIVE PLATING. SINCE THIS IS THE FIRST FAILURE IN THIS MODE NO FURTHER ACTION WILL BE TAKEN AT THIS TIME.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	N2-99-04-4413P AMPLIFIER-TRANSISTOR	FAR 27-41843-3	208D 830803	FACTORY	YES NO	
FAILURE MODE-ERRATIC OPERATION. THE DC ROLL AMPLIFIER WAS IN/O FOR BLOPPY AND ERRATIC MULL AND APPEARED TO BE VIBRATION SENSITIVE. FAILURE ANALYSIS FOUND SOURCE OF TROUBLE TO BE TRANSISTOR 84 (2N2024). DISASSEMBLY OF THIS TRANSISTOR REVEALED A CIRCULAR METAL CURLING FREE TO MOVE INSIDE THE CASE AND CAUSE INTERMITTANT SHORTS.						
CORRECTIVE ACTION-60/C AND RAYTHEON ARE EXAMINING WAYS TO IMPROVE QUALITY CONTROL. ALL X-RAY FILMS ARE NOW EXAMINED WITH 13 POWER MAGNIFICATION ON A SHADOWGRAPH. THIS RESULTS IN PRECISE INTERPRETATION WITH REDUCED EYE FATIGUE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-AS-04-4374-F AMPLIFIER-INDUCTOR	FAR 27-41000-831	43P 830703	FACTORY	YES 60/C NO	
FAILURE MODE-OUT OF TOLERANCE. DURING MISSILE COMPOSITE VERNIER 1 YAW/ROLL GAINS AT PLUS ROLL BIAS, DRIFTED HIGH OUT OF SPECIFICATION. FAILURE WAS CONFIRMED DUE TO AN INTERMITTENT OPEN-CIRCUITED FILTER CHOKE 27-04186-1. CAUSE OF OPEN-CIRCUITED CHOKE COULD NOT BE FOUND. NO EVIDENCE OF OVERHEATING OR MISUSE WAS OBSERVED.						
CORRECTIVE ACTION-VENDOR ADVISED OF CHOKE FAILURE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-AS-04-4340-F	FAR 27-41000-831	43P 830703	FACTORY	YES 60/C NO	
FAILURE MODE-ERRATIC OPERATION. PITCH SIGNAL WAS ERRATIC DURING THE FILL AND BLEED STATIC GAIN TEST. FAILURE NOT CONFIRMED BY EXTENSIVE FAILURE ANALYSIS. MOST PROBABLE CAUSE OF FAILURE WAS POOR ELECTRICAL CONNECTION WHICH WAS CORRECTED BY REPLACING THE SERVOAMPLIFIER.						
CORRECTIVE ACTION-NONE, FAILURE NOT CONFIRMED.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A183-0003-48P/FC-CO-81-0012-082 AMPLIFIER	COMPOSITE-FACTORY 27-41000-831	43P 830830		YES 60/C YES	
FAILURE MODE-OUT OF TOLERANCE. LOW VERNIER NO. 1 ROLL GAINS WERE EVIDENT DUE TO LOW NEGATIVE GAIN FROM THE ROLL MODULATOR IN THE SERVO AMPLIFIER INCREASE.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI QTH	VENDOR NAME VENDOR PART NO	
SYSTEM EFFECT-OPERATION TOO LOW. ROLL GAINS TOO LOW BECAUSE OF FAULTY ROLL MODULATOR. VEHICLE EFFECT-COMPOSITE RESCHEDULED. SYSTEM AND COMPOSITE RETESTING WAS REQUIRED. CORRECTIVE ACTION-SERVO AMP. WAS REPLACED. HOWEVER, AFTER REPLACEMENT, BOOSTER NO. 1 PITCH APPEARED ERRATIC. THE SERVO AMP. WAS AGAIN FOUND DEFECTIVE AND REPLACED. NO INFO WAS AVAILABLE CONCERNING THE EXACT NATURE OF THE PROBLEMS ENCOUNTERED WITH THE SECOND UNIT.							894341
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-80-04-4350-F	FAR 27-41000-857	1570 830603	WTR	YES NO	GO/C	892301
FAILURE MODE-OUT OF TOLERANCE. DURING MANOEUVRE, LOW NO-GOS WERE RECEIVED ON CARDS 164 AND 188. BOOSTER 1 AND 2 ROLL 3 LEAVING TIME WAS SLOW AND FAILURE WAS INTERMITTENT. NO DETECTABLE FAILURE WAS OBSERVED IN THE AUTOPILOT SERVOAMPLIFIER. PRIMARY CAUSE OF FAILURE WAS NOT ISOLATED BY FAILURE ANALYSIS.							
CORRECTIVE ACTION-NO POSITIVE CORRECTIVE ACTION TAKEN SINCE CAUSE OF FAILURE WAS NOT ISOLATED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-79-04-4301-E CIRCUIT BOARD	FAR 55-41007-3	1280 830317	FACTORY	YES NO		897764
FAILURE MODE-ELECTRICAL OPEN. REJECTED FOR POOR SOLDER CONNECTIONS TO TRANSISTOR Q1 THROUGH Q7.							
CORRECTIVE ACTION-NONE. WORKMANSHIP ERROR CORRECTED BY INSPECTION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	HZ-79-04-4323-C AMPLIFIER TRANSISTOR	FAR 87-99900-027	830318	FACTORY	YES NO	RAYTHEON EN328A	891340
FAILURE MODE-ELECTRICAL SHORT. TRANSISTOR REPORTEDLY SHORTED BETWEEN COLLECTOR AND EMITTER.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT DETERMINED BECAUSE OF INABILITY TO PERFORM FAILURE ANALYSIS ON SPECIMEN BECAUSE TRANSISTOR INADVERTENTLY SCRAPPED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-79-04-4285F RESISTOR	FAR 59-41000-801	1280 830318	FACTORY	YES NO		
FAILURE MODE-OUT OF TOLERANCE. RATIO OF FEEDBACK TO INPUT RESISTOR VALUES IN THE YAW CHANNEL WERE OUT OF SPECIFICATION. THE FAILURE WAS CAUSED BY A CRACKED RESISTOR BODY. IT WAS ASSUMED THE RESISTOR WAS CRACKED BY INADEQUATE INSTALLATION PROCEDURE.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-TOOLING AND METHOD OF CONFORMAL COATING WERE IMPROVED.							000763
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-19-04-4270P TRANSFORMER	FAR 27-41000-831	110F 830308	FACTORY	YES NO	YES 60/C	000209
FAILURE MODE-FAIL TO OPERATE. THE SERVO CANISTER WAS REJECTED FOR NO OUTPUT IN VERNIER AND 2 CHANNELS. FAILURE WAS CAUSED BY OPEN-PRIMARY OF TRANSFORMER T2 (27-04184-1) IN ROLL MODULATOR. THE PRIMARY AND SECONDARY OF THE TRANSFORMER WERE SHORTED TOGETHER. FAILURE OF THE TRANSFORMER WAS ATTRIBUTED TO SHORTING OF TURNS IN THE TRANSFORMER.							
CORRECTIVE ACTION-NONE. THE REASON FOR SHORTING OF TURNS IN THE TRANSFORMER WAS NOT LEARNED.							000103
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SP-99-04-4307-F AMPLIFIER/DIODE	FAR 27-41381-803	126D 830308	FACTORY	YES NO	YES TEXAS INSTRUME	
FAILURE MODE-ERRATIC OPERATION. DURING TEST IN FACTORY, EXCESSIVE NOISE (120dB) SHOWED ON VERNIER 1 PITCH AND VERNIER YAW/ROLL CHANNELS. FAILURE CONFIRMED DUE TO NOISY ZENER DIODE. DIODE HAD GROSS CASE LEAKAGE.							
CORRECTIVE ACTION-VENDOR CONTACTED AND PLACED INCREASED EMPHASIS ON THE 100-PERCENT HERMETIC SEAL TEST.							000207
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	SP-99-04-4287 SWITCH 17	FAR 27-72372-1	1900 830303	FACTORY	YES NO		
FAILURE MODE- FAIL TO OPERATE. SWITCH 17 HAD NO OUTPUT ON SAFE SIDE BECAUSE OF OPEN DIODE CR-6 IN REMOTE SET MODULE. FAILURE CAUSED BY SHORTING SWITCH 17, SAFE SIDE TO GROUND, IN MISSILE WIRING HARNESS.							
CORRECTIVE ACTION-SHORT IN HARNESS WAS REMOVED BY SITE PERSONNEL AT POINT ARGUELLO.							000810
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	CT-98-04-063P SERVOAMPLIFIER	FAR 35-41000-901	114D 830302	ETR	YES NO		
FAILURE MODE-ERRATIC OPERATION. UNIT REJECTED FOR AN INTERMITTENT PULSE OUTPUT IN THE YAW INTEGRATOR CHANNEL. FAILURE WAS ATTRIBUTED TO TWO LEAKING TRANSISTORS, 8-2 AND 8-3, WHICH APPLIED A NEGATIVE VOLTAGE TO BOTH SIDES OF A CAPACITOR MOMENTARILY CAUSING THE ERRATIC OPERATION.							
CORRECTIVE ACTION-ALL 2N688A TRANSISTORS WERE RETESTED AND REPLACED IF DEFECTIVE.							

GENERAL DYNAMICS
CORPORATION DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-99-04-4308-F AMPLIFIER RESISTOR	FAR 27-41359-3	630429	FACTORY	YES NO	
FAILURE MODE- OUT OF SPECIFICATION. RESISTOR R-11 REPORTED BURNED AND CRACKED IN DC AMPLIFIER. FAILURE NOT VERIFIED , CONFORMAL COATING FOUND CRACKED BUT RESISTOR NOT DAMAGED AND MET SPECIFICATIONS.						
CORRECTIVE ACTION-FACTORY MANUFACTURING PROCESS SPECIFICATION REVIEWED AND FOUND ADEQUATE IN COVERING CONFORMAL COATING PROCESS.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	M7-99-04-4248F AMPLIFIER	FAR 27-41359-803	630419	FACTORY	YES NO	
FAILURE MODE-FAILED DURING OPERATION. BOOSTER ONE PITCH FAILED TO HALL DURING TEST OF SERVO CAN. AMPLIFIER ASST WAS REPLACED AND CAN FUNCTIONED NORMALLY.						
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4243F FILTER	FAR 27-41359-801	630419	FACTORY	YES NO	
FAILURE MODE-OUT OF TOLERANCE. FILTER SATURATION WAS SLIGHTLY LOW AFTER WARM UP.						
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-A9-04-4243F TRANSFORMER RESISTORS	FAR 27-41000-891	1970 630419	FACTORY	YES NO	
FAILURE MODE-FAIL TO OPERATE. SERVO CANISTER WAS REJECTED FOR NO OUTPUT FROM YAW CHANNEL. FAILURE WAS CAUSED BY OPE N PRIMARY AND OTHER DAMAGE TO TRANSFORMER T2 IN THE YAW MODULATOR RESULTING FROM INSTALLATION OF INCORRECT VALUE RESISTORS IN THE R2 AND R4 POSITIONS.						
CORRECTIVE ACTION-NONE. FACTORY PERSONNEL WERE INFORMED OF THE CAUSE OF THE FAILURE.						

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-9D-04-4293F	FAR 27-41000-897	1570 830415	WTR	YES NO	60/C
FAILURE MODE-OUT OF TOLERANCE. THE SERVO WAS REJECTED FROM VEHICLE 153D BECAUSE VERNIER ONE PITCH AND ROLL GAINS WERE LOW.						
CORRECTIVE ACTION-NONE. FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-9D-04-4324-F AMPLIFIER TRANSISTOR	FAR 27-41358-801	630415	FACTORY	YES NO	
FAILURE MODE-FAIL DURING OPERATION. AMPLIFIER FAILED FACTORY CHECKOUT TEST AT 160 DEGREES F. FAILURE CONFIRMED. DUE TO DISCREPANT TRANSISTOR Q-1 (2N239A). TRANSISTOR EXHIBITED HIGH LEAKAGE FROM COLLECTOR TO EMITTER AT ELEVATED TEMPERATURE. CAUSE OF LEAKAGE NOT DETERMINED.						
CORRECTIVE ACTION-60/C ADDED A REVISED TRANSISTOR HEAT TEST TO CHECKOUT PROCEDURE. THIS PROCEDURE REQUIRES 100-PERCENT TESTING OF DC AMPLIFIERS AT 160 DEGREES F AND ALSO SPECIFIES THE METHOD OF REMOVING HEAT-SENSITIVE TRANSISTORS.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AX63-0003-197D/FC-02-0031-001 SERVOAMPLIFIER	COMPOSITE-FACTORY 27-41000-891	1970 630412		YES NO	60/C
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. YAW AXIS ENGINE MOVEMENTS WERE NOT EVIDENT, HOWEVER, TELEMETRY DATA INDICATED SATISFACTORY DISPLACEMENT GYRO RESPONSE. THE FAILURE OCCURRED IN THE YAW AXIS FILTER CIRCUITRY OF THE SERVO AMPLIFIER PACKAGE.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED, SYSTEM LEVEL AND COMPOSITE RETESTING REQUIRED.						
CORRECTIVE ACTION-REPLACED SERVO AMPLIFIER.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9D-04-4221F	FAR 27-41000-893	153F 630408	FACTORY	YES NO	60/C
FAILURE MODE-FAIL DURING OPERATION. PLUS OR MINUS 50 DEGREE VERNIER BIAS DID NOT OCCUR. FAILURE WAS NOT CONFIRMED.						
CORRECTIVE ACTION-FAILURE WAS NOT CONFIRMED. NO CORRECTIVE ACTION TAKEN.						

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CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	3P-99-04-4328-C FILTER-ELECTRICAL-TRANSFORMER	FAR 27-41359-811	630323	FACTORY	YES NO		091336
FAILURE MODE-FAIL DURING OPERATION. FILTER ASSEMBLY REMOVED DUE TO FAILURE OF TRANSFORMER T-2. SUBSTITUTION OF FILTER GAVE SATISFACTORY TOP PACKAGE OPERATION. SPECIMEN INADVERTENTLY REMOVED AND FAILURE ANALYSIS NOT PERFORMED.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT DETERMINED BECAUSE OF INABILITY TO PERFORM FAILURE ANALYSIS ON SPECIMEN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	MC-98-04-4192-P AMPLIFIER-ZENER DIODE	FAR 27-41000-843	1300 630320	ETR	YES NO		094423
FAILURE MODE-FAIL DURING OPERATION. THE SERVOMPAMPLIFIER FAILED DURING A CHECKOUT PROCEDURE IN HANGAR-J GYROSCOPE LAB. THERE WAS NO INTEGRATOR GAIN CHANGE IN THE YAW CHANNEL. ANALYSIS CONFIRMED THE FAILURE AND /TTRIBUTED IT TO A LEAKY ZENER DIODE (1N761).							
CORRECTIVE ACTION-INITIATED FAR MC-98-04-3700 REQUESTING EITHER A REDESIGN OF THE PRESENT CIRCUIT SO THAT SMALL LEAKAGE OF THE ZENER DIODE WILL NOT AFFECT CIRCUIT OPERATION OR REVISE THE ZENER DIODE SPECIFICATION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	CT-38-04-049F SERVOMPAMPLIFIER TRANSISTOR	FAR 55-41000-801	1180 630319	36A	NO NO		092607
FAILURE MODE- FAIL DURING OPERATION. UNIT REJECTED WHEN THE SUSTAINER PITCH ACTUATOR WENT HARD OVER. FAILURE ATTRIBUTED TO AN EXTERNAL SHORT CIRCUIT OCCURRING DURING TROUBLESHOOTING, WHICH RESULTED IN AN OPEN AND A SHORT IN TWO TRANSISTORS.							
CORRECTIVE ACTION-TROUBLESHOOTING PROCEDURES WERE CHANGED TO PREVENT RECURRENCE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-09-04-427F AMPLIFIER	FAR 27-41365-3	630316	FACTORY	YES NO		093366
FAILURE MODE-NONE. THIS UNIT WAS ERRONEOUSLY SENT BACK TO FAILURE ANALYSIS INSTEAD OF THE REMOVED AREA AFTER IT WAS DISPOSITIONED FOR REMOVAL PER FAR A-99-04-4104P.							
CORRECTIVE ACTION-NONE REQUIRED. PART ERRONEOUSLY SENT TO FAILURE ANALYSIS.							

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CONVAIR DIVISION

19 JUN 1968

DIFFICULTIES REVIEW-AUTOPLOTT SYSTEM-AIRBORNE

SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI DIP OTH	VENDOR NAME VENDOR PART NO
AUTOPLOTT-SQUARE-A/B FILTER AND SERVOMP	AOJ83-0049/A1-401-00-193 HARNES3-WIRING	FLIGHT	193D 830316	WTR 103	YES NO	GO/C
<p>FAILURE MODE-FAILED DURING OPERATION-FEEDBACK SIGNAL LEAD EITHER SHORTEU OR OPENED WITHIN ENGINE COMPARTMENT, OR A SHORT OR OPEN CONDITION EXISTED IN THE CONNECTOR PINS, CRT BOARDS OR COMPONENTS. BASIC CAUSE OF FAILURE WAS ABNORMAL LY HIGH TEMP IN ENGINE COMPARTMENT.</p> <p>SYSTEM EFFECT-ERRATIC OPERATION-B2 PITCH TRAVEL WAS GREATER THAN B1 PITCH INDICATING LOSS OF PROPORTIONAL CONTROL. B2 EXHIBITED A LARGE PHASE LAG AND FAILED TO NULL PROPERLY AT BOOSTER CUTOFF. AT 103 SECS A/R CONTROL IN PITCH BECAME OSCILLATORY WITH SUBSEQUENT LOSS OF PITCH ATTITUDE REF. BOTH BOOSTERS DEVELOPED STOP TO STOP PITCH MOVEMENTS OF 28 DEG/SEC FLOW LIMITING VELOCITIES.</p> <p>VEHICLE EFFECT-LOSS OF VEHICLE STABILITY-RESULTED IN SHUTDOWN OF SUSTAINER AND VERNIER ENGINES. MISSILE SELF DESTROYED AFTER 248 SEC AND TANK SECTION IMPACTED APPROX 300 N. MILES DOWN RANGE.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPLOTT-SQUARE-A/B FILTER AND SERVOMP	AOJ 83-0049/A1-401-00-193 HARNES3-WIRING	FLIGHT	193D 830316	WTR 135 SEC	NO NO	GO/C
<p>FAILURE MODE-FAILED DURING OPERATION. LOSS OF ZERO YAW INTEGRAL SIGNAL OCCURRED 0.72 SEC. PRIOR TO STAGING THE MOST PROBABLE CAUSE IS VIBRATION AND ACCELERATION ENVIRONMENT CREATED BY THE PREVIOUS PITCH FAILURE. OTHER POSSIBLE MODES OF FAILURE WERE A MALFUNCTION OF GYRO SIG. AMP. OR SHORT IN MISSILE HARNES3 RESULTING FROM THE PREVIOUS FAILURE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. MISSILE ACCELERATED NOSE-RIGHT AT MAX. YAW RATE OF 8 DEG./SEC. ROTATING AT 110 DEGREES BY 135 SECONDS AND RESULTED IN SHUTDOWN OF SUSTAINER AND VERNIER ENGINES. MISSILE SELF-DESTRUCTED AT TANK 248 SECS. AND TANK SECTION IMPACTED APPROX. 300 N. MILES DOWN RANGE.</p> <p>CORRECTIVE ACTION-NONE.</p>						
AUTOPLOTT-SQUARE-A/B FILTER AND SERVOMP	CT-98-D4-0502 SERVOAMPLIFIER	FAR 55-41000-801	1160 830313	36A	YES NO	GO/C
<p>FAILURE MODE-OUT OF TOLERANCE. UNIT REJECTED WHEN BOOSTER 2 TRAVELED HARD OVER IN YAW. IN ADDITION, THERE WAS NO CONTROL OF BOOSTER 1 YAW SERVOAMPLIFIER. THE BOOSTER 1 PROBLEM WAS ATTRIBUTED TO AN EXTERNAL SHORT CIRCUIT OF THE AMPLIFIER OUTPUT DURING TROUBLESHOOTING. THE BOOSTER 2 PROBLEM WAS ATTRIBUTED TO A DEFECTIVE SOLDER JOINT AT THE COLLECTOR LEAD OF TRANSISTOR 8-2.</p> <p>CORRECTIVE ACTION-RECOMMENDED COMPLEX 36 TROUBLE SHOOTING PROCEDURES BE REVISED TO PRECLUDE INADVERTENT SHORTS. QUALITY CONTROL ACTION WAS REQUESTED REGARDING THE DEFECTIVE SOLDER JOINT.</p>						

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DIFFICULTIES REVIEW-AUTOPLOIT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4320-F AMPLIFIER TRANSISTOR	FAR 27-41358-803	830313	FACTORY	YES NO	
<p>FAILURE MODE-FAIL DURING OPERATION. AMPLIFIER MALFUNCTIONED AT HIGH TEMPERATURE. FAILURE CONFIRMED DUE TO FAULTY Q5 TRANSISTOR (2N343). TRANSISTOR HAD EXCESSIVELY HIGH LEAKAGE CURRENTS. CAUSE OF TRANSISTOR BECOMING LEAKY WAS NOT FOUND.</p> <p>CORRECTIVE ACTION-RECEIVING INSPECTION TESTS FOR 2N343 TRANSISTORS WERE REVIEWED BY GO/C AND FOUND TO HAVE SUFFICIENT COVERAGE TO DETECT LEAKAGE CURRENTS. RECORDS ALSO DISCLOSED AN EXTREMELY SMALL PERCENTAGE OF 2N343S ARE REJECTED FOR THIS TYPE OF DISCREPANCY.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	AX63-0003-135F/FC-CO-02-0011-031 COMPOSITE-FACTORY	135F 630308	135F 630308	FACTORY	YES YES	
<p>FAILURE MODE- FAIL TO OPERATE AT PRESCRIBED TIME. THE PLUS OR MINUS 90 DEGREE VERNIER PITCH BIAS FUNCTION EXPECTED AT FLIGHT PROGRAMMER START PLUS 125 SECONDS DID NOT OCCUR. CAUSE OF FAILURE NOT PINPOINTED SINCE AVAILABLE DATA SHOWS BOTH FILTER SERVOAMPLIFIER AND PROGRAMMER WERE REPLACED.</p> <p>SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL- OMISSION OF VERNIER BIAS.</p> <p>VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. SYSTEM AND COMPOSITE RETEST REQUIRED.</p> <p>CORRECTIVE ACTION-FILTER SERVOAMPLIFIER WAS REPLACED.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	3P-99-04-4203-F SHRO FILTER	FAR 27-43186-3	201D 830225	FACTORY	YES NO	
<p>FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. OUTPUT WAS LOW. (SUBASSEMBLY NO.21). FAILURE COULD NOT BE CONFIRMED IN SHRO SUB ASSEMBLY, BUT WAS TRACED TO CYRO SHRO FILTER. NEW FILTER ELIMINATED PROBLEM. SEE FAR 99-04-4181F FOR FILTER FAILURE ANALYSIS.</p> <p>CORRECTIVE ACTION-SEE 3A-99-04-4181F FOR FILTER CORRECTIVE ACTION.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4219F AMPLIFIER/TRANSISTOR	FAR 27-41358-803	830225	FACTORY	YES NO	
<p>FAILURE MODE-OUT OF TOLERANCE. AMPLIFIER WAS OUT OF SPEC DURING 180 DEGREE F TEMPERATURE TEST. FAILURE WAS DUE TO TEMPERATURE SENSITIVITY OF TRANSISTOR Q1, 2N329A.</p> <p>CORRECTIVE ACTION-REVISION D OF EOP 330.280 PROVIDES FOR REPLACEMENT OF HEAT SENSITIVE 2N329A TRANSISTORS.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	H6-98-04-4157-F CIRCUIT BOARD	FAR 87-41845-3	87F 630206	FACTORY	YES NO	60/C 994665
FAILURE MODE-OUT OF TOLERANCE. THE MODULATOR ASSEMBLY WAS SLIGHTLY OUT OF TOLERANCE DURING GAIN TESTS.						
CORRECTIVE ACTION-THE MODULATOR ASSEMBLY WAS RECALIBRATED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4156-F AMPLIFIER TRANSISTOR	FAR 87-95900-027	200D 630206	FACTORY	YES NO	RAYTHEON 28329A 994664
FAILURE MODE-ELECTRICAL OPEN. IT WAS REPORTED THE TRANSISTOR FAILED A TEST AND WAS SHORTED BASE TO EMITTER. ADDITIONAL INFORMATION WAS UNOBTAINABLE. THE TRANSISTOR IS MOST COMMONLY USED IN A D-C AMPLIFIER CIRCUIT OF AN AUTOPILOT SERVOAMPLIFIER. ANALYSIS FOUND THE EMITTER JUNCTION BROKEN LOOSE FROM THE CRYSTAL. THERE WERE NO SHORT CIRCUITS.						
CORRECTIVE ACTION-EVERY EFFORT WILL BE MADE TO FORWARD ALL AVAILABLE PERTINENT DATA CONCERNING A FAILURE IMMEDIATELY AFTER THE FAILURE OCCURS.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4155-F CIRCUIT BOARD TRANSISTOR	FAR 87-95900-068	135F 630205	FACTORY	YES NO	HUGHES HAT7334 994663
FAILURE MODE-ELECTRICAL SHORT. IT WAS REPORTED THAT THE TRANSISTOR, Q-2 OF AMPLIFIER 2 OF A SERVOAMPLIFIER CIRCUIT BOARD, HAD LOW IMPEDANCE. ANALYSIS FOUND THE TRANSISTOR TO BE SHORT-CIRCUITED FROM COLLECTOR TO EMITTER. A HOLE IN-THE COLLECTOR JUNCTION WAS THE ONLY PHYSICAL DISCREPANCY OBSERVED.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	H2-99-04-4148-F CIRCUIT BOARD/RESISTOR	FAR 27-41363-801	630122	FACTORY	RESISTANCE PRO DUCTS	994602
FAILURE MODE-ERRATIC OPERATION. THE SWITCH AND SUMMING ASSEMBLY WAS HEAT SENSITIVE WHEN TESTED IN THE TOP PACKAGE IN THE FACTORY CHECKOUT AREA. ANALYSIS FOUND THE BOOSTER 2 PITCH CHANNEL EXHIBITING INTERMITTENT OPERATION CAUSED BY AN OPEN OF RESISTOR R-10. THE RESISTANCE WIRE WAS BROKEN OFF THE END CONNECTOR BECAUSE OF A VOID AND A POOR SOLDER CONNECTION.						
CORRECTIVE ACTION-UNKNOWN.						

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CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	NZ-99-04-4160-F CIRCUIT BOARD	FAR 27-41393-803	630122	FACTORY	YES	GD/C NO	894666
FAILURE MODE-FAIL DURING OPERATION. THE SWITCH AND SUMMING ASSEMBLY WAS REPORTEDLY HEAT SENSITIVE WHEN TESTED IN THE TOP PACKAGE. THIS DISCREPANCY WAS NOT VERIFIED DURING SUBASSEMBLY TEST. THE DESIGN GROUP MENTIONED THE POSSIBILITY OF ACCUMULATION OF TOLERANCES MAY HAVE EXISTED BETWEEN THIS YAW SWITCH AND SUMMING ASSEMBLY AND THE YAW MODULATOR ASSEMBLY.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	NZ-A9-04-4066-F AMPLIFIER	FAR 27-44935-3	630122	FACTORY	NO	GD/C NO	897766
FAILURE MODE-OUT OF TOLERANCE. YAW INTEGRATOR DOES NOT RESPOND PROPERLY TO GROUND SIGNAL WHEN POSITIVELY-BIASED. THE FLIGHT-CONTROL DESIGN GROUP REVEALED THAT THEY WERE AWARE OF THE PROBLEM AND ASSURED FACTORY PERSONNEL THAT THIS PROBLEM ONLY OCCURS DURING GROUND CHECKOUT OF THE A/P SYSTEM AND WILL NOT EFFECT FLIGHT PERFORMANCE.							
CORRECTIVE ACTION-NONE. FAILURE UNCONFIRMED. THE PROBLEM EXISTS IN GROUND CHECK OUT ONLY AND WILL NOT OCCUR IN FLIGHT.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AX63-003-193D/PC-CO-01-0013-007 SERVOAMPLIFIER	COMPOSITE-FACTORY 27-44935-3	193D 630120	FACTORY	YES	GD/C NO	898206
FAILURE MODE-FAIL DURING OPERATION-AFTER REMOVAL OF THE GYRO BIAS AT 8 SECONDS, THE BOOSTER ENGINE MULL TIME WAS EXCESSIVE.							
SYSTEM EFFECT-OPERATION TOO LONG.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. COMPOSITE RETEST AND SYSTEM RETEST REQUIRED.							
CORRECTIVE ACTION-THE SERVO AMPLIFIER CANISTER WAS REPLACED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4125-F CIRCUIT BOARD/TRANSFORMER	FAR 27-04164-1	630118	FACTORY	YES	THERMADOR NO TCS-25145	891506
FAILURE MODE-FAIL DURING OPERATION. THE TRANSFORMER BURNED AND BURST DURING TESTING OF THE CIRCUIT BOARD IN THE FACTORY ELECTRONIC CHECKOUT AREA. THE PRIMARY AND ONE OF THE SECONDARY WINDINGS BURNED OPEN.							
CORRECTIVE ACTION-NONE. EXACT CAUSE OF TRANSFORMER FAILURE COULD NOT BE FOUND. HOWEVER, IT WAS INDICATED THAT THE FAILURE WAS DUE TO EXTERNAL ELECTRICAL ABUSE.							

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CONVAIR DIVISION

16 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-98-04-4067-F SERVO AMPLIFIER TRANSISTOR	FAR 98-41000-601	630117	ETR	YES NO		697671
FAILURE MODE-OUT OF TOLERANCE. ROLL CHANNEL HAD NO DC OUTPUT. CAUSED BY TEMPERATURE SENSITIVE TRANSISTOR (2N329A).							
CORRECTIVE ACTION-ALL IC20 2N329A S WERE SPECIAL TESTED. ALL SERVO AMPLIFIERS WERE RETESTED AFTER A TWO HOUR WARM UP.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	FARA-98-04-4108-F AMPLIFIER	FAR 27-41358-3	630117	FACTORY	YES NO	27-41358-3	697663
FAILURE MODE-OUT OF SPECIFICATION. AMPLIFIER WAS REJECTED AT THE FACTORY WHEN IT WOULD NOT MULL PROPERLY DURING D-C GAIN TESTS. THE FAILURE WAS NOT CONFIRMED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION WAS TAKEN BECAUSE THE CAUSE OF FAILURE WAS NOT DETERMINED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-98-04-4036F TRANSFORMER	FAR 27-41000-637	157D 630114	PALC2	YES NO	YES AC ELECTRONICS	694593
FAILURE MODE-OUT OF TOLERANCE. SERVOAMPLIFIER CANISTER WAS REJECTED FOR ELEVEN OHM RESISTANCE MEASUREMENT BETWEEN U ZP2 AND GROUND. PRIMARY OF TRANSFORMER T1 IN PITCH DEMODULATOR HADRESISTANCE OF 18.65 OHM, SHOULD BE 80 OHMS. PRIMARY Y AND SECONDARY WINDINGS HAD NO IMPREGNANT. CAUSE OF FAILURE WAS NOT DETERMINED.							
CORRECTIVE ACTION-VENDOR CHANGED PROCESSES TO INSURE ADEQUATE IMPREGNATION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AX83-0003-134F/PC-CO-02-0011-030 MULLING AMPLIFIER	COMPOSITE-FACTORY	134F 630111	FACTORY	NO NO		698410
FAILURE MODE-OUT OF TOLERANCE. INTEGRATOR MULL SWITCH TIME COULD NOT BE DETERMINED BECAUSE THE SUSTAINER AND VERNIER ENGINES WERE BIASED FULL POSITIVE AT SUSTAINER CUTOFF. CAUSE OF FAILURE WAS AGE MULLING AMPLIFIER.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. PARTIAL COMPOSITE RETEST PERFORMED.							
CORRECTIVE ACTION-FAULTY MULLING AMPLIFIER WAS REPLACED. (AGE).							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	H6-A9-04-4039F TRANSFORMER	FAR 27-04388-1	630110	FACTORY	NO NO	TRANSONIC MO 782313
FAILURE MODE-FAIL DURING OPERATION. PART WAS ANALYZED TO DETERMINE IF DAMAGE OCCURRED WHEN PHASE B OF GROUND POWER FAILED. NO DAMAGE OCCURRED.						
CORRECTIVE ACTION-NONE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	H6-A9-04-4044F TRANSFORMER	FAR	1300 630110	FACTORY	NO NO	
FAILURE MODE- FAIL DURING OPERATION. UNIT WAS ANALYZED TO SEE IF DAMAGE OCCURRED WHEN PHASE B OF GROUND POWER FAILS. THREE PHASE TRANSFORMER 27-04159-1 HAD CRACKED CASE. NO FUNCTIONAL DISCREPANCIES WERE FOUND.						
CORRECTIVE ACTION-FAILURE ANALYSIS GROUP ADVISED MAINTENANCE DEPARTMENT THAT GROUND POWER UNIT MUST BE PROPERLY MAINTAINED.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4193-F AMPLIFIER TRANSISTORS	FAR 27-41350-803	630110	FACTORY	YES NO	
FAILURE MODE-OUT OF TOLERANCE. THE DC AMPLIFIER ASSEMBLY NOISE LEVEL BETWEEN 10 KC TO 1 MC WAS 150 MV PEAK-TO-PEAK WHEREAS THE SPEC ALLOWS 25 MV. THIS CIRCUIT BOARD WAS FAILURE ANALYSED BEFORE AND WAS FOUND TO BE HEAT SENSITIVE (IFA R A-99-04-4078P). ANALYSIS CONFIRMED THE REPORTED FAILURE AND ATTRIBUTED IT TO HIGH-FREQUENCY OSCILLATION DUE TO THE COMBINED EFFECT OF THE HIGH-GAIN TRANSISTORS RESULTING IN AN OVERALL HIGH LOOP GAIN.						
CORRECTIVE ACTION-FACTORY PROCEDURE, EOP 330-280, WAS REVISED FOR CLARITY IN KEEPING HIGH-FREQUENCY OSCILLATION TO A MINIMUM SPECIFIED VALUE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4151-F AMPLIFIER RESISTOR	FAR 27-41350-803	630101	FACTORY	NO NO	
FAILURE MODE-FAILED DURING OPERATION. THE D-C AMPLIFIER ASSEMBLY WAS REJECTED WHEN RESISTOR R-11 WAS REPORTED TO BE BURNED AS A RESULT OF MANUFACTURING TESTING. ANALYSIS DETERMINED THAT THE RESISTOR WAS NOT DAMAGED BUT APPEARED BURNED BECAUSE OF DISCOLORATION OF THE CONFORMAL COATING. THE DARKENING IS A CHARACTERISTIC OF EPOXY RESINS, AND IS NOT INJURIOUS TO THE PHYSICAL OR ELECTRICAL CHARACTERISTIC OF THE COATING.						
CORRECTIVE ACTION-FACTORY INSPECTION SUPERVISION IS NOW AWARE OF CONFORMAL COAT DISCOLORATION AND WILL STOP REJECTING CIRCUIT BOARDS FOR THIS.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	HC-99-04-4087-F AMPLIFIER TRANSISTOR	FAR 27-41361-603	621220	FACTORY	YES NO		894676
FAILURE MODE- OUT OF TOLERANCE. AMPLIFIER NUMBER 1 FAILED TO WALL DURING MANUFACTURING TEST OF SERVOAMPLIFIER. FAILURE CONFIRMED DUE TO CRACKED CONNECTION AT EMITTER BASE OF TRANSISTOR 91 (24028A).							
CORRECTIVE ACTION-VENDOR INITIATED NEW WHISKER PLATING TECHNIQUES AND ADDITION OF STRAIN RELIEF TO WHISKER AND ADOPTION OF DOUBLE ENDED TAB.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	HC-99-04-4086-F AMPLIFIER CAPACITOR	FAR 27-41361-603	621220	FACTORY	YES TEXAS INSTRUMENTS NO MTS		894675
FAILURE MODE- FAIL TO OPERATE. NO OUTPUT FROM AMPLIFIER NUMBER 3 DURING TEST OF AUTOPILOT SERVOAMPLIFIER PACKAGE. FAILURE CONFIRMED DUE TO INTERMITTENTLY OPEN CIRCUITING CAPACITOR C-1 (81-34900-044). CAUSE OF CAPACITOR FAILURE COULD NOT BE CONCLUSIVELY DETERMINED.							
CORRECTIVE ACTION-VENDOR INFORMED OF FAILURE- INCONCLUSIVE EVIDENCE OF CAPACITOR FAILURE MODE PREVENTED POSITIVE ACTION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	HC-99-04-4085-F CIRCUIT BOARD	FAR 27-41359-603	621220		NO GO/C YES		894673
FAILURE MODE-FAIL DURING OPERATION. NEGATIVE ROLL FUNCTION INOPERATIVE. FAILURE NOT CONFIRMED. PROBABLE CAUSE DUE TO FAILURE OF ANOTHER CIRCUIT BOARD IN PACKAGE. (SEE FAR 99-04-4086 AND 4087 FOR PRIMARY CAUSE.)							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4032P AMPLIFIER, TRANSISTOR	FAR 87-99900-019	621212	FACTORY	YES NO		896364
FAILURE MODE-ERRATIC OPERATION-IT WAS REPORTED THAT A SERVOAMPLIFIER FAILED DUE TO INTERMITTENT OPERATION OF TRANSISTOR (PNP) DURING VIBRATION TESTING. FAILURE ANALYSIS CONFIRMED THE FAILURE. THE TRANSISTOR FAILURE WAS DUE TO POOR BONDING OF LEAD WIRES TO THE JUNCTION.							
CORRECTIVE ACTION-FAR-A-99-04-3648 WAS WRITTEN. A NEW TRANSISTOR DESIGN WAS INCORPORATED INTO THE AUTOPILOT SYSTEM. 90/C NOW PURCHASES TRANSISTORS USING PROCUREMENT SPECIFICATION G-78007.							

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SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-98-04-4123-F AMPLIFIER/TRANSISTOR	FAR 27-41643-803	621206	FACTORY	YES NO		091311
FAILURE MODE-OUT OF TOLERANCE. THE AMPLIFIER FAILED DURING AN IN-PROCESS POST-CONFORMAL TEST WHEN A DEKATRAH READ 1 850 INSTEAD OF 2500 DURING AN A-C GAIN AND SATURATION TEST OF THE PLUS ROLL CHANNEL. ANALYSIS SHOWED THAT THE AMPLIFIER DRIFTED OUT OF TOLERANCE DUE TO HIGH LEAKAGE CURRENTS IN TRANSISTOR Q4 WHEN WARMED.							
CORRECTIVE ACTION-ISSUED SURVEY 7-83 TO (1) RETEST ALL NEW 2N329A TRANSISTORS AT ELEVATED TEMPERATURES AND (2) RETEST BY ALL SERVOAMPLIFIERS AT ELEVATED TEMPERATURES.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-4643F AMPLIFIER/TRANSISTOR	FAR	621203	FACTORY	NO NO		094603
FAILURE MODE-OUT OF TOLERANCE. 2N329A TRANSISTOR WAS REJECTED BECAUSE AMPLIFIER HAD EXCESSIVE HIGH FREQUENCY NOISE. NO DEFECT WAS FOUND IN THE TRANSISTOR.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-4031F TRANSFORMER; EXCITATION	FAR 27-04355-3	21P 621121	ETR	YES NO	YES TRANSONIC	096311
FAILURE MODE-OPEN ELECT.-COMPONENT WAS REJECTED FOR AN OPEN PRIMARY WINDING. FAILURE ANALYSIS REVEALED OPEN PRIMARY WINDING. THERE WAS A THREE OHM SHORT BETWEEN PRIMARY AND SECONDARY WINDINGS, AND A SHORT BETWEEN WINDINGS AND CASE. THE REASON FOR THE CONDITION OF THE TRANSFORMER WAS NOT LEARNED.							
CORRECTIVE ACTION-ETR PERSONNEL WERE REQUESTED TO USE CAUTION WHEN PERFORMING CHECKS ON THIS COMPONENT AND FEEDBACK TRANSducers.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A482-0106/PI-80M-01-21 TRANSFORMER EXCITATION	COMPOSITE-PRD/DPL	21P 621120	11	YES NO		093780
FAILURE MODE-ERRATIC OPERATION. INVESTIGATION OF ERRATIC SUSTAINER AND VERNIER POSITIONS REVEALED THAT THERE WAS NO ENGINE FEEDBACK VOLTAGE AND THE PRIMARY WINDING OF THE EXCITATION TRANSFORMER WAS OPEN.							
SYSTEM EFFECT-ERRATIC OPERATION. SUSTAINER AND VERNIER ENGINE POSITION SIGNALS WERE ERRATIC AND PHASE A VOLTAGE DROPPED TO 80 VOLTS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-EXCITATION TRANSFORMER 9/M 100-0200 WAS IR D AND REPLACED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-4034F AMPLIFIER/RESISTOR	FAR 27-41301-1	021119	FACTORY	YES NO	095194
FAILURE MODE-OUT OF TOLERANCE. SERVOAMPLIFIER HAD HIGH GAIN. OUTPUT CURRENT WAS 3MA INSTEAD OF 2MA AT STATED INPUT. RESISTOR R229 WAS 29 OHMS SHOULD BE 98 OHM ONE PERCENT. RESISTOR CASE WAS CRACKED.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	DA826/02-8MO-17-13 CONNECTOR, STAGING DISCONNECT	COMPOSITE-FRD/DPL	13F 021107	6	YES NO	095560
FAILURE MODE-ELECTRICAL SHORT. CONNECTOR SHORTED DUE TO MOISTURE IN PLUG RESULTED IN DAMAGED SERVO AMPLIFIER.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. CAUSED BOOSTER ENGINES TO GO HARD OVER IN PITCH.						
VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULED.						
CORRECTIVE ACTION-PLUG PURGED UNTIL DRY. SERVO AMP REPLACED. LATER DESIGN FIX INSTALLED WATER DRIP SHIELD ON CONNECTOR.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3546F AMPLIFIER TRANSISTOR-2N329A	FAR 27-41000-831	13F 021107	06TF-2	YES NO	095599
FAILURE MODE-FAIL DURING OPERATION. THE BOOSTER ENGINES WENT TO THE FULL LIMIT IN THE YAW POSITION DURING TEST PER TO 21-SH65F-CL-3-1 SECTION 140. DURING THE UNBALANCE AND STATIC GAIN TESTS, THE YAW CHANNEL WAS INTERMITTENT. ALL THE YAW OUTPUTS FAILED TO NULL. HEAT SENSITIVE TRANSISTORS Q3 AND Q4 IN THE YAW D-C AMPLIFIER CAUSED THE FAILURE.						
CORRECTIVE ACTION-BAR A-90-04-3619 REQUESTING THAT THE TRANSISTOR VENDOR BE INFORMED OF THE CAUSE OF THIS FAILURE. GO/C TO RETEST ALL 2N329A. TRANSISTORS IN STOCK. NEW TRANSISTOR WILL BE TESTED TO REVISED PROCEDURES.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3561F CIRCUIT BOARD, TRANSISTOR	FAR 07-95900-019	021106	FACTORY	YES NO	096043
FAILURE MODE-ERRATIC OPERATION-DURING BENCH TESTS, SPURIOUS OSCILLATIONS ON THE OUTPUT OF THE NEXT ASSEMBLY CIRCUIT BOARD WERE TRACED TO THE TRANSISTOR. ALL PARAMETERS WERE WELL WITHIN MANUFACTURERS SPECIFICATIONS. THE INITIAL MALFUNCTION WAS PROBABLY DUE TO SOME DEFECT IN THE NEXT ASSEMBLY CIRCUIT BOARD.						
CORRECTIVE ACTION-FAILURE NOT CONFIRMED. NO CORRECTIVE ACTION. FACTORY PERSONNEL WERE REQUESTED TO FORWARD ALL CIRCUITRY INVOLVED TO FAILURE ANALYSIS WHENEVER A FAILURE OCCURS.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE TIME DIF	PRI DIF	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	H6-98-04-3321-F FILTER-ELECTRICAL TRANSISTOR	PAR 27-41000-831	821102	FACTORY	YES	60/C NO
<p>FAILURE MODE-FAIL DURING OPERATION. UR YAW SERVOAMPLIFIER FAILED TO NULL DURING FACTORY FINAL CHECKOUT STATIC GAIN TESTS. CAUSE OF FAILURE WAS DETEIORATION OF MODULATOR-ASSEMBLY FILTER TRANSISTORS 81 AND 82 DUE TO A MANUFACTURING ETCHING PROCESS-(CHANNELING).</p>						
<p>CORRECTIVE ACTION-NONE-SUPPLY OF THIS TYPE TRANSISTOR (UNPASSIVATED) DEPLETED IN 60/C PRODUCTION NOV 62.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	39-90-04-3333F AMPLIFIER	PAR 27-41000-837	821031	MTN	NO	60/C NO
<p>FAILURE MODE-OUT OF TOLERANCE. THE SERVOAMPLIFIER FAILED WHEN IT EXHIBITED A LOW ENGINE BLEWING VOLTAGE. THE REPORT ED FAILURE WAS CAUSED BY USING OBSOLETE TEST PARAMETERS BY BASE PERSONNEL.</p>						
<p>CORRECTIVE ACTION-FAILURE NOT CONFIRMED. A NEW SET OF PARAMETER DOCUMENTS WERE FORWARDED TO THE BASE.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-9R-04-3361F AMPLIFIER TRANSISTOR-2N029A	PAR 27-41000-831	821025	WAFB	YES	NO
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING MAPCHE CHECKOUT PROCEDURE THE SERVOAMPLIFIER WOULD NOT GIVE OUT A PITCH SIGNAL. THE FAILURE COULD NOT BE DUPLICATED DURING FAILURE ANALYSIS, HOWEVER, DURING PITCH FILTER SATUR ATION TESTS, THE OUTPUT TOOK 30 SECONDS TO REACH A MAX WHEN THE CYRO SIGNAL PHASE WAS REVERSED. MAXIMUM ALLOWABLE I S 10 SECONDS. THIS DISCREPANCY WAS CAUSED BY TWO HEAT SENSITIVE TRANSISTORS.</p>						
<p>CORRECTIVE ACTION-NAR A-90-04-3018 WAS WRITTEN ABOUT THE HEAT SENSITIVE TRANSISTOR PROBLEM AND ADDRESSED TO VENDOR QUALITY CONTROL FOR PROPER CORRECTIVE ACTION. ALL NEW 2N029A TRANSISTORS RECEIVED FROM THE VENDOR AND ALL 2N029A IN STOCK AT 60/C WILL UNDERGO SPECIAL TESTING AT ELEVATED TEMPERATURES. ALL SERVOAMPLIFIERS AT MISSILE BASE AND IN THE FACTORY WILL SIMILARLY BE TESTED.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-9R-04-3356F	PAR 27-41000-831	821022	WAFB	NO	NO
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING A CHECKOUT PROCEDURE USING MAPCHE, IT WAS REPORTED THAT THE PITCH CHANNEL WOULD NOT RESPOND TO A MAPCHE SIGNAL. TESTING REVEALED NO DISCREPANCY. THE FAILURE WAS NOT CAUSED B Y THE SERVOAMPLIFIER BUT WAS DUE TO A DISCREPANCY SOMEWHERE ELSE IN THE AUTO PILOT SYSTEM. THE SYSTEM MALFUNCTION WA S ELIMINATED BY BASE PERSONNEL BU" THE EXACT CAUSE WAS NOT IDENTIFIED.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							895932
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AK62-0071/FC-CO-01-0008-008 AMPLIFIER	COMPOSITE-FACTORY 2500 821016 27-41000-891	FACTORY	YES	YES		896149
FAILURE MODE-FAIL DURING OPERATION-BOOSTER NO. 1 YAW/ROLL FEED BACK INDICATED AN EXTENDED MALLING PERIOD AT STAGING DUE TO A FAULTY SERVO AMPLIFIER PACKAGE AND HYDRAULIC ACTUATOR ASSEMBLY							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-COMPOSITE DELAYED OR RESCHEDULED.-SYSTEM AND COMPOSITE RETESTING WERE REQUIRED.							
CORRECTIVE ACTION-NONE-THE SERVO CANISTER AND HYDRAULIC ACTUATOR WERE REPLACED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-4081P SERVO AMPLIFIER TRANSISTOR	FAR 27-41002-895	821012	ETR	YES NO		897873
FAILURE MODE-OUT OF TOLERANCE-YAW DISPLACEMENT GAIN WAS TOO LOW. TRANSISTOR HAD LOW GAIN WHEN HEATED CAUSED BY CHAN MELTING. (RNS33).							
CORRECTIVE ACTION-NONE. ONLY SEVERLY CHANNIELED TRANSISTORS WOULD CAUSE A FAILURE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	HC-98-04-3350-F CIRCUIT BOARD, TRANSFORMER	FAR 27-41361-803	821011	FACTORY	YES NO		897222
FAILURE MODE-OUT OF TOLERANCE. BOOSTER 2 PITCH AMP FAILED TO NULL. FAILURE WAS CONFIRMED. CAUSE OF FAILURE INTERMIT TENT OPERATION OF FORMER T1 DUE TO SHORTCIRCUITING BETWEEN PINS 4 AND 9. CAUSE OF SHORT CIRCUITING UNDETERMINED.							
CORRECTIVE ACTION-INDUCED VOLTAGE TEST OF 230V AT 800 CPS ADDED TO RI TEST PROCEDURE TO FACILITATE REJECTION UNITS OF QUESTIONABLE ELECTRICAL INTEGRITY.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3303-F TRANSFORMER	FAR 27-41000-891	821004	WAFB	YES NO		897290
FAILURE MODE- FAIL TO OPERATE. BOOSTER ENGINES WOULD NOT SIGNAL DURING AUTOPILOT SYSTEMS TEST. DISCREPANCY CONFIRME D PROBLEM DUE TO OPEN-CIRCUITED PRIMARY WINDING IN PITCH CHANNEL INPUT TRANSFORMER.							
CORRECTIVE ACTION-NONE.							

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SYSTEM SUL-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PAR NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	MS-88-04-3471-F SERVOAMPLIFIER CONNECTOR	FAR 27-41000-848	821004	ETR	YES 60/C NO		894439
FAILURE MODE-STRUCTURAL. SERVOAMPLIFIER CANISTER WAS IN/O FOR BENT PINS IN CONNECTOR UBJ2. THESE PINS WERE BENT DURING HANDLING FOR SHIPMENT. CAUSE OF FAILURE WAS ATTRIBUTED TO FAILURE TO USE TIGHT FITTING PROTECTIVE PLASTIC COVERING OVER THE CONNECTOR.							
CORRECTIVE ACTION-ALL FUNCTIONS RESPONSIBLE FOR HANDLING AND TRANSPORTING NOTIFIED OF FAILURE AND CAUSE OF FAILURE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-40237 AMPLIFIER/CAPACITOR	FAR 27-41000-831	89F 820929	ALTUS	YES 60/C NO		893124
FAILURE MODE-OUT OF TOLERANCE-SERVO CANISTER WAS REJECTED FROM MISSILE 89F BECAUSE IT REPORTEDLY CAUSED THE GYRO CANNISTER TO GIVE A FAIL INDICATION. NO MALFUNCTION WAS FOUND IN THE SERVO CANNISTER.							
CORRECTIVE ACTION-NONE-FAILURE WAS NOT CONFIRMED AT FACTORY.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-49-04-40227 AMPLIFIER/CAPACITOR	FAR 27-41000-853	18F 820928	FACTORY	YES NO		896399
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME- VERNIER TWO YAW AMPLIFIER HAD NO OUTPUT DURING CHECKOUT OF VEHICLE. THE FAILURE WAS ATTRIBUTED TO CAPACITOR C1 IN THE VERNIER TWO YAW AMPLIFIER WHICH HAD A HIGH RESISTANCE SHORT.							
CORRECTIVE ACTION-CAPACITOR VENDOR IMPROVED MANUFACTURING PROCESS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-4018-F TRANSISTOR	FAR 27-41339-801	820920	FACTORY	YES TEXAS INSTRUMENTS NO NTS		893126
FAILURE MODE- ERRATIC OPERATION. TRANSISTOR 81 WAS HEAT SENSITIVE. HEAT SENSITIVITY OF TRANSISTOR WAS ATTRIBUTED TO CRACK IN BASE-EMITTER JUNCTION AND LOOSE CHITTER LEAD CONNECTION AT THE SILICON CHIP. TRANSISTOR WAS TEXAS INSTRUMENTS MTG 8M498.							
CORRECTIVE ACTION-TEXAS INSTRUMENTS CHANGED MANUFACTURING PROCESS OF 8M498.							

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AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3488-F PITCH-AMPLIFIER	FAR 27-41361-803	820913	FACTORY	YES	60/C NO
<p>FAILURE MODE-ERRATIC OPERATION. SERVOASSEMBLY WAS IR/D WHEN B-1 PITCH AMPLIFIER EXHIBITED INTERMITTENT GAIN DURING A PROD. VIS. TEST. THE REPORTED FAILURE WAS NOT VERIFIED BY FUNCTIONAL TESTING IN COMPONENTS TEST LAB. OR BY RETEST ON FACTORY BOARD-LEVEL C/O EQUIP. FAILURE PROBABLY CAUSED BY IMPROPER PROCEDURES OR IMPROPER USE OF TEST EQUIPMENT.</p> <p>CORRECTIVE ACTION-FAILURE NOT CONFIRMED. QUAL. CONTROL SURVEY 141-80-3 CALLS FOR LOW LEVEL VIBRATION OF INDIVIDUAL BOARDS WHICH FAIL IN TOP PACKAGES BEFORE THEY ARE IR/D. THIS IS TO MINIMIZE POSSIBILITY OF REJECTING SOL-CIRCUIT BOARDS.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SP-99-04-3484-F ROLL MODULATOR AMPLIFIER	FAR 27-41843-3	820913	FACTORY	YES	60/C NO
<p>FAILURE MODE-OUT OF TOLERANCE. THE MODULATOR WAS IR/D FOR HIGH OUT-OF-TOL. GAIN. THE TOP PACKAGE FUNCTIONED NORMALLY WITH REPLACEMENT. COMPLETE CHECKS WERE MADE ON THE IR/D MODULATOR. IT WAS OBSERVED THAT THE GAIN OF THE ASSEMBLY WAS SLIGHTLY HIGH BUT WAS NOT OUT-OF-TOL.</p> <p>CORRECTIVE ACTION-FAILURE NOT CONFIRMED. FACTORY PERSONNEL ARE AWARE OF THIS ANALYSIS. NO FURTHER ACTION IS CONSIDERED NECESSARY.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3497-F TRANSISTOR	FAR 27-41361-803	820912	FACTORY	NO	RHEEN NO
<p>FAILURE MODE-FAIL DURING OPERATION. SERVOAMPLIFIER FAILED DUE TO SHORTED TRANSISTORS 83 AND 84 (RHEEN 2M99). FAILURE WAS DUE TO THE NEGATIVE OUTPUT OF AMPLIFIER 2 BEING SHORT-CIRCUITED TO GROUND. THE SHORT WAS INADVERTENTLY MADE WHILE TROUBLESHOOTING.</p> <p>CORRECTIVE ACTION-ALL BASE AND FACTORY CAUTIONED TO USE CARE IN TROUBLESHOOTING.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3481-F AMPLIFIER	FAR 27-41000-831	820911	ETR	YES	60/C NO
<p>FAILURE MODE-FAIL DURING OPERATION. REPORTED FAILED WHEN THE ROLL D.C. AMPLIFIER OUTPUT WOULD NOT RESPOND TO AN IMPUT SIGNAL. CORRECTIVE ACTION-FAILURE NOT CONFIRMED BY EXTENSIVE TESTS. SUSPECT MALFUNCTION OF THE TEST CIRCUITRY AT ETR. BASE PERSONNEL WERE ADVISED OF THE RESULTS OF THIS ANALYSIS AND WERE REQUESTED TO CHECK THE TEST CIRCUITRY IN THE EVENT OF ANOTHER FAILURE OF THIS TYPE.</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-FAILURE NOT CONFIRMED BY EXTENSIVE TESTS. SUSPECT MALFUNCTION OF THE TEST CIRCUITRY AT ETR. BASE PERSONNEL WERE ADVISED OF THE RESULTS OF THIS ANALYSIS AND WERE REQUESTED TO CHECK THE TEST CIRCUITRY IN THE EVENT OF ANOTHER FAILURE OF THIS TYPE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	SP-90-04-3398-F SERVOAMPLIFIER	FAR 27-41000-837	1360 620911	WTR	YES NO	603642
FAILURE MODE-OUT OF TOLERANCE. THE B1 ENGINE BLEW TIME IN PITCH WAS BLOW. THE FAILURE INDICATION DISAPPEARED AFTER EXTENDED WARMUP PERIODS. FAILURE COULD NOT BE CONFIRMED. UNIT WORKED PERFECTLY DURING FAILURE ANALYSIS. TEST EQUIPMENT WAS CHECKED OUT AND NO FAULTS FOUND.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN AS FAILURE COULD NOT BE CONFIRMED.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	MG-99-04-3403-F CIRCUIT BOARD-TRANSISTOR	FAR 27-41363-3	620909	ETR	NO NO	604162
FAILURE MODE-FAIL DURING OPERATION. TRANSISTORIZED SWITCH REPORTEDLY FAILED WHEN PLUS 36 VDC WAS INADVERTENTLY APPLIED TO A PLUS 12 VDC INPUT.						
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED AFTER EXTENSIVE TESTS.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3430-F TRANSFORMER	FAR 27-04164-1	620907	FACTORY	YES NO	603643
FAILURE MODE-SHORT (ELECT). THE FAILURE WAS CAUSED BY SHORTED TURNS IN SECONDARY WINDING, RESULTING FROM INADEQUATE COIL IMPREGNATION.						
CORRECTIVE ACTION-SURVEY 118-62 AND 121-62 WERE ISSUED CALLING FOR RE-TESTING THIS TYPE TRANSFORMER USED IN SERVOAMP PLIFIERS. ALL TRANSFORMERS FAILING THE NEW TEST REQUIREMENTS WERE REPLACED BY TRANSFORMERS WITH SERIAL NUMBERS OVER 208-1197, IN WHICH IMPROVED MANUFACTURING TECHNIQUES WERE INCORPORATED.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3433-F CIRCUIT BOARD TRANSISTOR	FAR 27-41000-833	620886	FACTORY	YES NO	603643
FAILURE MODE-FAIL TO OPERATE. SERVOAMPLIFIER FAILED WHEN THE VERNIER 2 ENGINE WOULD NOT MOVE IN THE YAW AXIS. THE FAILURE WAS DUE TO A SHORTED TRANSISTOR Q3 ON CIRCUIT BOARD P/N 27-41361-808. CAUSE OF SHORT NOT DETERMINED.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3333F PITCH AMPLIFIER-TRANSISTOR	FAR 27-41000-831	104F 820731	FACTORY	YES NO	094545
FAILURE MODE-OUT OF TOLERANCE. GYRO PACKAGE WAS IR/D BECAUSE VERNIER NO. 1 PITCH NULL WAS OUT OF TOLERANCE IRREGULARITY TRACED TO PITCH AMPLIFIER TRANSISTOR Q2 (2H1232) WHICH WAS FOUND TO BE HEAT SENSITIVE.						
CORRECTIVE ACTION-THE VENDOR OF THE 2H1232 TRANSISTOR, WESTMAN, WAS DELETED AS AN APPROVED SOURCE FOR FUTURE PROCUREMENT. THE FACTORY HAS PURGED THEIR STOCK OF WESTMAN 2H1232 TRANSISTORS.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3378F FILTER-ELECTRICAL-TRANSFORMER-T2	FAR 27-41000-831	31F 820727	DAPB	YES NO	095533
FAILURE MODE-OUT OF TOLERANCE. DURING FAILURE ANALYSIS, SLIGHTLY OUT OF TOLERANCE READOUTS IN THE PITCH CHANNELS WERE NOTED. THESE WERE ISOLATED TO A DISTORTED SIGNAL FROM THE DEMODULATOR OUTPUT CAUSED BY TRANSFORMER T2, P/N 27-04164-1, IN THE PITCH MODULATOR FILTER ASSEMBLY. THE TRANSFORMER WAS NOISY. THE CAUSE FOR THE NOISY TRANSFORMER WAS NOT DETERMINED.						
CORRECTIVE ACTION-THE NOISY TRANSFORMERS WERE FABRICATED ONLY DURING A PERIOD OF SHORT SUPPLY. THERE ARE NONE NOW IN STOCK. ANY THAT WERE INSTALLED IN AUTOPILOT PACKAGES WERE REMOVED DURING QUALITY CONTROL SURVEY INSTRUCTIONS 116-62 AND 121-62. NO FURTHER CORRECTIVE ACTION WILL BE TAKEN.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3378F AMPLIFIER TRANSISTOR	FAR 27-41000-831	31F 820727	DAPB	YES NO	091330
FAILURE MODE-FAIL DURING OPERATION. VERNIER NO. 2 YAW AMPLIFIER P/N 27-41361-805 8/M 1387 HAD NO OUTPUT. TRANSISTOR 8 Q4 AND Q5 HAD EMITTER LEADS MELTED OPEN. DIODES CR-4 AND CR-5 WERE OPEN-CIRCUITED. TRANSISTOR Q3 WAS SHORTED EMITTER TO COLLECTOR. THE EXTENT AND CONDITION OF THE COMPONENTS INDICATED THAT THE PLUS AND MINUS OUTPUT OF THE SERVOAMPLIFIER WAS SHORT-CIRCUITED TO GROUND.						
CORRECTIVE ACTION-TW 578-588 80F, DATED MARCH 2, 1962, WAS SENT TO ALL SITES NOTIFYING PERSONNEL TO EXERCISE CAUTION DURING PERFORMANCE OF COMPLEX SYSTEMS CHECKS OR TROUBLESHOOTING WITH THE SYSTEM POWER ON. A CAUTION NOTE WAS ADDED TO THE AUTOPILOT SYSTEM NO-60 INSTRUCTIONS OF DECKS 6, 15, 33, 37. THE SERVICE ENGINEERING GROUP INITIATED PROPOSAL TO INSERT A CAUTION NOTE IN ALL TECHNICAL ORDERS FOR OPERATIONAL MISSILES.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3378F AMPLIFIER TRANSISTOR-NAT834	FAR 27-41000-831	31F 820727	DAPB	YES NO	091330
FAILURE MODE-OUT OF TOLERANCE. DURING PERFORMANCE OF MARCHE DECK 481-704, NO-608 WERE RECEIVED ON CARDS 483,485 AND 489-INDICATING NO OUTPUT FROM VERNIER NO. 1 ENGINE YAW ROLL AND YAW CHANNELS FAILURE WAS DUE TO A DEFECTIVE TRANSISTOR R 82 (HAT834) CAUSING TRANSISTOR Q3 TO FAIL.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-FAR A-99-04-3881 REQUESTING THAT THE VENDOR BE NOTIFIED OF THIS ANALYSIS.						091324
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9A-04-3414-F DIODE	FAR 87-19003-028	620726	FACTORY	YES	TEXAS INSTRUMENT NO MT	094271
	FAILURE MODE-OPEN (ELECT). FAILURE CONFIRMED BUT CAUSE NOT DETERMINED.						
	CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9L-04-3440-F ROLL AMPLIFIER DIODE	FAR 27-41000-831	620723	LINCOLN	YES NO		093070
	FAILURE MODE-FAIL DURING OPERATION. FAILED DURING MARCHE TEST WHEN THE ROLL AMPLIFIER MALFUNCTIONED DUE TO SHORTED DIODE CR-3 TYPE 5V806.						
	CORRECTIVE ACTION-NONE. THE 5V806 DIODE IN THIS CIRCUIT HAS BEEN REPLACED BY A 1N2034.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9D-04-3337F TRANSFORMER SERVO AMPLIFIER	FAR 27-41000-831	57F 620722	WTR	YES NO		094721
	FAILURE MODE- FAIL TO OPERATE. SERVOAMPLIFIER-FILTER CANISTER IR/D FOR LACK OF ROLL CHANNEL OUTPUT. FAILURE TRACED TO SHORTED TRANSFORMER T2. MULTIPLE COMPONENT DAMAGE RESULTED FROM SHORT TRANSFORMER FAILURE OCCURRED AS A RESULT OF POOR INSULATION IMPREGNATION.						
	CORRECTIVE ACTION-DOUBLE VOLTAGE-DOUBLE FREQUENCY TEST ADDED TO RECEIVING INSPECTION. GO/C SURVEY INSTRUCTION 116-6 2 AND 121-62 DATED 19 SEP 62 AND 3 OCT 62 REMOVED POSSIBLE FAULTY TRANSFORMER FROM TOP PACKAGES.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9M-04-3350F AMPLIFIER DIODE	FAR 27-41000-813	18F 620716	6	SKILLIN	YES NO	
	FAILURE MODE- FAIL TO OPERATE AT PRESCRIBED TIME. CANISTER IR/D FOR FAILURE TO OPERATE. THE CANISTER OPERATED CORRECTLY, HOWEVER, AN INTERMITTENT FAILURE WAS FOUND IN THE PITCH CHANNEL. DIODES CR-2 AND CR-9 WERE FOUND CRACKED ON BO AND A241. THIS PROBABLY WAS CAUSED BY EXPANSION OF CONFORMAL COATING WHICH WAS TOO THICK.						
	CORRECTIVE ACTION-MATERIAL MANUFACTURING SPECIFICATION DATED 620404 WAS ISSUED ON THE SUBJECT OF CONFORMAL COATING.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	H6-88-04-2887-F	FAR 27-41000-843	620717	FACTORY	YES	60/C NO	893139
FAILURE MODE-OUT OF SPECIFICATION-SERVO CAN WAS OUT OF SPEC ON FREQUENCY RESPONSE. NO FAILURE WAS FOUND IN THE SERV O CAN. IT WAS ASSUMED THE FAILURE WAS CAUSED BY TEST EQUIPMENT MALFUNCTION OR INCORRECT METER READING.							
CORRECTIVE ACTION-NONE-FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-49-04-3280-F TRANSISTOR	FAR 27-41000-831	620713	FACTORY	YES	WESTRAN NO	896376
FAILURE MODE-OUT OF TOLERANCE. SERVO CAN WAS REJECTED FOR HIGH POSITIVE PITCH INTEGRATOR GAIN. TRANSISTOR 63 ON THE 44A1 BOARD WAS FOUND TO BE HEAT SENSITIVE. TRANSISTOR WAS WESTRAN 2M232.							
CORRECTIVE ACTION-WESTRAN WAS REMOVED FROM APPROVED VENDOR LIST.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3296F AMPLIFIER, DIODE	FAR 27-41338-803	620712	FACTORY	NO	NO	893481
FAILURE MODE-OUT OF SPECIFICATION. FAILED SATURATION TEST. FOUR ZENER DIODES WERE DAMAGED. THE DAMAGE COULD ONLY OC CUR THROUGH APPLICATION OF VOLTAGE TO AMPLIFIER OUTPUT.							
CORRECTIVE ACTION-NONE-FACTORY PERSONNEL WERE INFORMED OF RESULTS OF ANALYSIS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AR141-0-1-128 AMENDMENT A/FC-4CO-D COMPOSITE-FACTORY 8-128	128D 620708	FACTORY	NO	NO		899210
FAILURE MODE-OUT OF TOLERANCE. VERNIER NO. 2 PITCH/ROLL SERVO BIAS GAINS WERE APPROXIMATELY 15 PER CENT BELOW THE M INIMUM ALLOWED. THIS ANOMALY WAS CAUSED BY A NON-LINEAR ISOLATION AMPLIFIER IN THE AGE.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. VERNIER NO. 2 PITCH/ROLL SERVO BIAS GAINS WERE APPROXIMATELY 15 PER CENT BEL OW THE MINIMUM ALLOWED.							
VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-THE SIGNAL ISOLATION AMPLIFIER IN THE AGE WAS REPLACED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/S FILTER AND SERVOAMP	A-98-04-3838F AMPLIFIER-TRANSISTOR	FAR 27-41000-831	79F 620703	FACTORY	YES NO		894286
FAILURE MODE- OUT OF TOLERANCE. BOOSTER 2 WOULD NOT MULL. TRANSISTOR Q3 IN BOOSTER 2 YAW AMPLIFIER WAS SHORTED FROM EMITTER TO BASE. TRANSISTOR WAS NOT FIRMLY IN CONTACT WITH HEAT SINK. FAILURE WAS ATTRIBUTED TO SHORTED TRANSISTOR RESULTING FROM IMPROPER HEAT DISSIPATION.							
CORRECTIVE ACTION-UNKNOWN. REQUEST FOR INSPECTION PROCEDURE TO DETECT IF TRANSISTORS ARE MAKING GOOD CONTACT WITH HEAT SINK WAS NOT ENFORCED.							
AUTOPLOT-SQUARE-A/S FILTER AND SERVOAMP	A-98-04-3838F CIRCUIT BOARD, TRANSISTOR	FAR 27-41000-831	101F 620703	FACTORY	YES NO		894286
FAILURE MODE-OUT OF TOLERANCE OR SPECIFICATION-BOOSTER 1 ENGINE WOULD NOT MULL IN PITCH. FAILURE WAS DUE TO DEFECTIVE TRANSISTORS AND DIODES ON THE ASAZ BOARD. OTHER FAILURES IN YAW AND ROLL CHANNELS OCCURRED DURING FAILURE ANALYSIS. THESE WERE ATTRIBUTED TO HEAT SENSITIVE TRANSISTORS. ALL FAILURES WERE ATTRIBUTED TO HEAT SENSITIVE 2N329A.							
CORRECTIVE ACTION-SWITCHED FROM COMMERCIAL PART TO USAF029A.							
AUTOPLOT-SQUARE-A/S FILTER AND SERVOAMP	A-98-04-3332F AMPLIFIER	FAR 27-41000-831	620703	DYESS	YES NO		894728
FAILURE MODE-OUT OF TOLERANCE. THE SERVOAMP. PACKAGE WAS REPORTED FAILED FOR A LOW ROLL INTEGRATOR DURING TEST. ON RECHECK AT MAB THE FAILURE WAS REPORTED AS LOW YAW AND PITCH FEEDBACK VOLTAGES. THESE FAILURES COULD NOT BE CONFIRMED. DURING FAILURE ANALYSIS A NOISY TRANSFORMER T2 WAS REPLACED.							
CORRECTIVE ACTION-NOT KNOWN. THE NOISY T2 TRANSFORMER IS A RECURRENT PROBLEM AND IS UNDER INVESTIGATION.							
AUTOPLOT-SQUARE-A/S FILTER AND SERVOAMP	A-98-04-3338F TRANSFORMER	FAR 27-41000-831	620830	DYESS	YES NO		894728
FAILURE MODE-OUT OF TOLERANCE. CAPACITOR IR/D FOR FAILURE TO MULL. DURING ANALYSIS THE MODULATOR ASSEMBLY EXHIBITED AN OUTPUT DISTORTION DUE TO A NOISY TRANSFORMER T2. THIS TRANSFORMER CAUSED THE PITCH STATIC GAIN OUTPUT TO BE OUT OF TOLERANCE.							
CORRECTIVE ACTION-SURVEY 118-62 AND 121-62 WERE ISSUED CALLING FOR RETEST OF T-2 TRANSFORMERS ALL TRANSFORMERS FAILING NEW TEST WILL BE REPLACED BY TRANSFORMERS WITH S/N OVER 808-1197. THESE INCORPORATE IMPROVED MANUFACTURING TECHNIQUES.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3330F AMPLIFIER-TRANSISTOR	FAR 27-41000-331	820630	DYESS	YES NO		894548
FAILURE MODE- OUT OF TOLERANCE. THE SERVOAMP. CANISTER WAS IR/D WHEN THE PITCH SIGNAL AMPLIFIER WOULD NOT NULL DURING CHECKOUT. THE PITCH SIGNAL AMPLIFIER HAD A LEAKY WESTMAN TRANSISTOR. THIS TRANSISTOR, 2N1232 HAD A NEAR SHORT-CIRCUIT FROM EMITTER-TO-COLLECTOR.							
CORRECTIVE ACTION-THE VENDOR, WESTMAN, WAS ELIMINATED AS AN APPROVED SOURCE AND STOCK PURGED OF THEIR TRANSISTORS OF THIS TYPE.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3318F AMPLIFIER	FAR	31F 820630	DYESS	YES NO		893896
FAILURE MODE-FAIL DURING OPERATION. SERVOAMPLIFIER CANISTER WAS SUBMITTED FOR FAILURE ANALYSIS ON IR 878307, PFAR D-212. FAILURE IN THE V-2 PITCH CHANNEL WAS CONFIRMED.							
CORRECTIVE ACTION-NOT KNOWN.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3417-F SERVOAMPLIFIER TRANSISTOR	FAR 27-41000-831	820628	SCHILLIN C	YES NO		894157
FAILURE MODE-FAIL DURING OPERATION. UNIT FAILED WHEN TRANSISTOR OF BOARD A5A2 AMPLIFIER ONE SHORTED. CAUSE OF SHORT NOT DETERMINED BUT SUSPECT IMPROPER MOUNTING IN HEAT SINK							
CORRECTIVE ACTION-A SPECIAL STUDY OF HEAT SINK MOUNTING PROBLEMS WAS STARTED BUT DROPPED DUE TO LACK OF CONTRACTUAL COVERAGE.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3332F SERVO-AMPLIFIER	FAR 27-41000-831	94F 820627	DYESS	YES NO		894548
FAILURE MODE-FAIL DURING OPERATION-SERVOAMPLIFIER PACKAGE WAS IR/D WHEN BOOSTER ENGINES WOULD NOT NULL. PACKAGE WAS OPERATED A TOTAL OF SIX HOURS DURING FAILURE ANALYSIS. AT NO TIME WERE ANY OUTPUTS OUTSIDE SPECIFICATION. THE REPORTED FAILURE WAS NOT CONFIRMED. FAILURE WAS PROBABLY DUE TO AN ELECTRICAL CONNECTOR COMING LOOSE DURING SHIPMENT TO THE BASE.							
CORRECTIVE ACTION-NONE-FAILURE WAS NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-99-04-3281F AMPLIFIER	FAR 27-41391-803	820825	FACTORY	YES NO		991012
FAILURE MODE-OUT OF TOLERANCE. COMPONENT EXHIBITED OSCILLATIONS ON WAVEFORM TEST EOP 330.277. FAILURE WAS CAUSED BY ZENER DIODES CR2 AND CR3 BEING NOISY.							
CORRECTIVE ACTION-EOP 330.277 WAS REVISED TO ALLOW HIGHER NOISE LEVEL. MAP 2708 REPLACED ZENER DIODES CR2 AND CR3 W ITH IMPROVED TYPES.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-99-04-3324F	FAR 27-41000-831	81F 820615	DYES8	YES NO	60/C	996080
FAILURE MODE-OUT OF TOLERANCE. THE SERVOMP. PACKAGE WAS 1R/D AS THE VERNIER ENGINE NO 1 CIMSLED TO HALF TRAVEL IN PITCH. UNIT WAS GIVEN EXHAUSTIVE TESTING BUT FAILURE COULD NOT BE CONFIRMED.							
CORRECTIVE ACTION-TWA SENT TO BASE ADVISING THE PERSONNEL TO CHECK TEST EQUIPMENT AND/OR SWITCH 3 OF THE PROGRAMMER FOR POSSIBLE MALFUNCTION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-99-04-3387F AMPLIFIER TRANSFORMER	FAR 27-41000-831	87E 820610	WTR	YES NO		993184
FAILURE MODE-FAIL DURING OPERATION. BOOSTER ENGINES WENT HARD OVER IN PITCH. TROUBLE TRACED TO FAULTY TRANSFORMER T -E ON THE MODULATOR ASSEMBLY-FILTER CIRCUIT BOARD 27-41399-801. NOISY TRANSFORMER T-2 IS A RECURRING PROBLEM.							
CORRECTIVE ACTION-THESE TRANSFORMERS WERE SURVEYED OUT PER SURVEY INSTRUCTIONS 118-82 AND 121-82.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-99-04-3271F DC AMPLIFIER	FAR 27-41391-803	820807	FACTORY	YES NO		993363
FAILURE MODE-DRIFT. DC AMPLIFIER GAIN DRIFTED OUT OF SPEC. FAILURE WAS NOT CONFIRMED AND WAS ATTRIBUTED TO HUMAN ER ROR.							
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3270-F	FAR 27-41361-603	920607	FACTORY	YES	60/C NO
FAILURE MODE-ERRATIC OPERATION. SERVO CAN WAS REJECTED BECAUSE OSCILLATIONS WERE SEEN ON BOOSTER 1 YAW. FAILURE WAS NOT CONFIRMED AND WAS ATTRIBUTED TO HUMAN ERROR. SEE IR 835194.						
CORRECTIVE ACTION-NONE. THE FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3281-F TRANSFORMER	FAR 27-41000-831	18F 920609	SAFB	NO	620606 NO
FAILURE MODE-SHORT ELECTRICAL. SERVO CAN WAS REJECTED FOR SHORT BETWEEN 303 U2/1/2 PIN FT AND GROUND. TRANSFORMER T1 IN PITCH MODULATOR HAD SHORTED PRIMARY WINDINGS. PRIMARY WINDINGS OF TRANSFORMER T1 IN YAW-ROLL MODULATOR WERE OPEN. THIS DAMAGE WAS ATTRIBUTED TO APPLICATION OF HIGH VOLTAGE TO SERVO CAN INPUTS DUE TO WIRING ERROR IN UMBILICAL J-B OK.						
CORRECTIVE ACTION-WIRING ERROR IN J-BOX WAS CORRECTED BY BASE PERSONNEL. NO OTHER CORRECTIVE ACTION.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3201-F AMPLIFIER TRANSISTOR	FAR 27-41000-831	47F 920528	SAFB	YES	996503 NO
FAILURE MODE- OUT OF TOLERANCE. THE BOOSTER NUMBER 1 YAW AMPLIFIER INDICATED A STEADY-STATE UNBALANCE. NO-608 WERE RECEIVED ON CARDS 481 AND 483 OF DECK 401. FAILURE WAS DUE TO TRANSISTOR Q3 EXCESSIVE COLLECTOR TO BASE LEAKAGE. WHEN CLEANED, TRANSISTOR FUNCTIONS WERE RESTORED TO NORMAL.						
CORRECTIVE ACTION-EFFECTIVE 1 JUNE 1962. 60/C PURCHASED RHEEN/RAYTHEON TRANSISTORS, TYPE 2M498, WITH LATEST DESIGN CHANGE FEATURING IMPROVED RELIABILITY.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3259-F CIRCUIT BOARD-DIODES	FAR 27-41361-603	920525	FACTORY	NO	60/C NO
FAILURE MODE-OUT OF TOLERANCE. CIRCUIT BOARD WAS REJECTED WHEN TOP PACKAGE FAILED EOP 330.290 PARA 8.7. TRANSISTORS 91 82 AND 93 WERE SHORTED EMITTER TO COLLECTOR. DIODES CR1 CR2 AND CR3 WERE OPEN. THIS DAMAGE WAS ATTRIBUTED TO THE APPLICATION OF MORE THAN FORTY VOLTS TO THE SIGNAL INPUT.						
CORRECTIVE ACTION-FACTORY PERSONNEL CAUTIONED TO OBSERVE CORRECT PROCEDURES AND VOLTAGES DURING TROUBLE SHOOTING.						

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SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-48-04-3300	FAR 27-41389-801	820508	FACTORY	YES	60/C	993693
FAILURE MODE-OUT OF SPECIFICATION. FAILED EOP 330.878 PARA 6.16.1. FAILURE WAS NOT CONFIRMED. NO MALFUNCTIONS WERE FOUND. CORRECTIVE ACTION-NONE-FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-49-04-3200P AMPLIFIER CONNECTOR	FAR 27-41361-805	820504	AAPB	YES	NO	997414
FAILURE MODE-ELECTRICAL SHORT. DURING AN ALTUS BREAK OF INSPECTION, A MISCONNECTION WAS MADE RESULTING IN NO V2 PIT ON OUTPUT. THE IMPROPER CROSS CONNECTION AFFECTED AMPLIFIER NO. 1 RESULTING IN A SHORTED TRANSISTOR AND AN OPEN DIODE.							
CORRECTIVE ACTION-NONE.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3265C AMPLIFIER	FAR 27-41361-805	820504		YES	60/C	993693
FAILURE MODE-OUT OF TOLERANCE-SERVOAMPLIFIER WAS REJECTED IN THE FACTORY. NO REASON FOR REJECTION WAS GIVEN. NO ANALYSIS WAS PERFORMED BECAUSE THE ASSEMBLY WAS REMOVED AFTER REJECTION.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9H-04-3210-P	FAR 27-41000-831	820503	AAPB	YES	60/C	998072
FAILURE MODE-CONTAMINATION. A MERCURY VAPOR TEST INDICATED THE PRESENCE OF MERCURY WITHIN THE CANISTER. THE CANISTER WAS CONTAMINATED BY THE PURGE SYSTEM.							
CORRECTIVE ACTION-THE PRESENCE OF MERCURY IN THE CANISTER WAS QUESTIONABLE. THE PACKAGE WAS SCRAPPED. LEAK TEST MERCURY MANOMETERS WERE REMOVED FROM THE FACTORY AND PRODUCT SUPPORT LEAK TEST AREAS, EFFECTIVE 7 MAY 1968.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3302P MODULATOR ASSEMBLY-FILTER TRANSFORMER	FAR 27-41389-807	820503	FACTORY	YES	NO	
FAILURE MODE- FAILURE DURING OPERATION. TWO CIRCUIT BOARDS FAILED DURING CHECKOUT. TROUBLE WAS TRACED TO MULTIPLE SHORT CIRCUIT IN TRANSFORMER T-2.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI DIP	OTH DIP	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-VENDORS HAVE PERFORMED THE FLANGES OF THE SCOBIN TO FACILITATE IMPREGNATION OF THE INNER TRANSFORMER WINDINGS. AN INDUCED VOLTAGE TEST OF DOUBLE-VOLTAGE DOUBLE-FREQUENCY WAS ADDED TO THE RECEIVING INSPECTION TEST PROCEDURE. SURVEY INSTRUCTIONS 118-62 AND 121-62 REMOVED FAULTY T-2 TRANSFORMERS FROM THE TOP PACKAGES.							093413
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3301F	FAR 27-41339-801	820302	FACTORY	YES	60/C NO		097547
FAILURE MODE-OUT OF TOLERANCE. BOOSTER NUMBER 1 PITCH STATIC GAIN READINGS WERE TOO LOW DURING FACTORY SUBASSEMBLY CHECKOUT. PROBLEM WAS NOT CONFIRMED.								
CORRECTIVE ACTION-NONE. CAUSE OF PROBLEM COULD NOT BE DETERMINED.								
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3280C AMPLIFIER/DC	FAR 27-41339-3	820428	FACTORY	YES	NO		091011
FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE. FAILED EOP 330.240 B. NO ANALYSIS WAS PERFORMED BECAUSE COMPONENT WAS PARTIALLY REMOVED FROM PREVIOUS FAILURE. THIS FAILURE WAS DUE TO INCOMPLETE REMOVAL.								
CORRECTIVE ACTION-NONE. NO ANALYSIS PERFORMED.								
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3299F AMPLIFIER-TRANSISTOR	FAR 27-41000-831	17F 820423	SHILLING	YES	NO		093402
FAILURE MODE-OUT OF SPECIFICATION. SUSTAINER YAW STATIC GAIN WAS OUT OF SPEC ON VEHICLE. FAILURE WAS NOT CONFIRMED. HOWEVER, PITCH STATIC GAINS WERE OUT OF SPEC DUE TO NOISY PITCH DECK TRANSFORMER. ALSO, TRANSISTORS 83 AND 84 IN THE PITCH D.C. AMP WERE HEAT SENSITIVE. TRANSISTORS WERE RAYTHEON 2N29A.								
CORRECTIVE ACTION-TRANSISTOR TYPE SWITCHED FROM COMMERCIAL TO UBA2N29A. NOISY TRANSFORMER WAS OF 60/C MAKE. ALL WERE REMOVED FROM AUTOPILOTS BY SURVEY INSTRUCTIONS 118-62 AND 121-62.								
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-99-04-3423-F AMPLIFIER	FAR 27-41000-831	27F 820423	ALTUS	YES	60/C NO		094122
FAILURE MODE-OUT OF TOLERANCE. SERVOAMPLIFIER REPORTEDLY FAILED WHEN BOOSTER NUMBER ONE ENGINE DID NOT TRAVERSE AT THE CORRECT RATE.								
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.								

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DIFFICULTY REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3828C AMPLIFIER	FAR 27-41008-935	620424	AAFB	NO YES		895376
FAILURE MODE-FAIL DURING OPERATION. MAIN GYRO CAN WAS REJECTED BECAUSE ENGINES COULD NOT BE NULLED IN YAW. THIS FAILURE WAS ATTRIBUTED TO DISCREPANCY IN ASSOCIATED SERVOAMPLIFIER. NO FAILURE ANALYSIS WAS PERFORMED ON THIS GYRO CAN. NO REFERENCE TO THE SERVOAMPLIFIER FAR WAS GIVEN.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3404F FILTER-ELECTRICAL	FAR 27-41845-1	620420	FACTORY	YES NO	GD/C	897527
FAILURE MODE-OUT OF SPECIFICATION. VERNIER ROLL FILTER FAILED EOP 330 AND 336 FOR HAVING NO BOOSTER NUMBER 2 PITCH OUTPUT. FAILURE ANALYSIS DETECTED NO FAILURES IN THE CIRCUIT BOARD.							
CORRECTIVE ACTION-FACTORY SUPERVISION ADVISED OF NON-CONFIRMED FAILURE. GD/C WILL MONITOR THIS TYPE OF UNCONFIRMED FAILURES TO DETERMINE IF A PROBLEM AREA EXISTS IN THE FACTORY.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3404-F VERNIER ROLL FILTER	FAR 27-41845-1	620420	FACTORY	YES NO	GD/C	894183
FAILURE MODE-FAIL DURING OPERATION. FAILED TO OPERATE BY HAVING NO BOOSTER NUMBER TWO PITCH OUTPUT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED AFTER EXTENSIVE TESTS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3184F AMPLIFIER	FAR 27-41000-931	12F 980417	PMR	NO NO	GD/C	893920
FAILURE MODE-FAIL DURING OPERATION-DURING MARCHE CHECKOUT CARDS 451 AND 461. THE GYRO AMPLIFIER PRODUCED NO OUTPUT. THE FAILURE COULD NOT BE CONFIRMED. THE CARBONER PERFORMED WITHIN SPECIFICATION. THE PROBABLE CAUSE OF THE REPORT OF FAILURE WAS DUE TO IMPROPER MARCHE READOUT OR HUMAN ERROR.							
CORRECTIVE ACTION-UNKNOWN.							

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CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VEHICLE NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOPAMP	A-99-04-3264-F	FAR 27-41398-801	620416	FACTORY	NO YES	60/C
<p>FAILURE MODE-DRIFT. SERVO CANISTER FAILED EOP 330-290 PARA. 2.11.1. FAILURE WAS NOT VERIFIED. NO DISCREPANCIES WERE FOUND IN THE SERVO CANISTER OR TEST EQUIPMENT. FAILURE WAS ATTRIBUTED TO LOOSE TEST EQUIPMENT CONNECTIONS.</p> <p>CORRECTIVE ACTION-NONE.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOPAMP	DAT07/E1-840-01-13 WIRING	COMPOSITE-FRQ/DPL 15F 620404	15F 620404	576E-1	YES NO	60/C
<p>FAILURE MODE-DRIFT. B1 AND B2 VAN INTEGRATORS DRIFTED OUT OF SPECIFICATIONS DURING AUTOPILOT DRIFT. TEST POST TEST INVESTIGATION REVEALED MISSING GROUND WIRE ON VAN INTEGRATORS.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED.</p> <p>CORRECTIVE ACTION-UNKNOWN.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOPAMP	RA-98-04-3164-F DIODE	FAR 27-41000-831	1330 620403	ETR	YES NO	TRANSISTRON ELE CITRONICS CORP
<p>FAILURE MODE-OUT OF TOLERANCE-DURING CHECKOUT THE MINUS 21.3 VDC TOLERANCE WAS FOUND TO READ MINUS 14VDC. THE FAILURE WAS CONFIRMED AND WAS DUE TO A DEFECTIVE DIODE (8W081) IN THE A8A1 POWER SUPPLY CIRCUIT BOARD. THE DIODE WAS POORLY MANUFACTURED.</p> <p>CORRECTIVE ACTION-RAR WRITTEN TO THE VENDOR TO TAKE ACTION TO IMPROVE THEIR MANUFACTURING TECHNIQUES AND INSPECTION PROCEDURES. VENDOR DID IMPROVE QUALITY CONTROL OF DIODE ASSEMBLY. A BETTER DIODE (1N6234) IS NOW IN USE IN THE FACTORY.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOPAMP	A-99-04-3160F CIRCUITBOARD	FAR 27-41643-803	620312	FACTORY	NO NO	
<p>FAILURE MODE-ERRATIC OPERATION. DURING FACTORY PRODUCTION VIBRATION TESTING PER EOP 330-291 OF THE SERVOPAMPLIFIER, THE PLUS VERNIER ROLL FILTER ON SUBJECT CIRCUIT BOARD WAS ERRATIC. THE FAILURE COULD NOT BE VERIFIED. IT APPEARS THAT THE PROBLEM AREA IS IN THE FACTORY FINAL CHECKOUT FACILITY.</p> <p>CORRECTIVE ACTION-UNKNOWN. FACTORY SUPERVISION WILL CALL ON DESIGN AND RELIABILITY ENGINEERS TO WITNESS ANY FUTURE FAILURES OF THIS TYPE AT THE FACTORY IN ORDER TO IDENTIFY AND DEFINE THE PROBLEM AREA.</p>						

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYS- SUB-SYS	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-9N-04-3142F CIRCUIT BOARD-TRANSISTOR	FAR 27-41000-831	25F 820224	5	NO	NO	894227
FAILURE MODE-SHORT (ELECT) THE VERNIER ENGINE 1 FAILED TO OPERATE IN YAW. FAILURE ANALYSIS REVEALED THAT TRANSISTOR 8 Q3 AND Q5 (BOTH 2N496) WERE SHORTED, EMITTER TO COLLECTOR. THE TRANSISTORS FAILED DUE TO A SHORTED OUTPUT EXTERNAL TO THE CANISTER. THE TRANSISTORS ARE A PART OF CIRCUIT BOARD AB41.							
CORRECTIVE ACTION-UNKNOWN. ADVISED THAT COMPLEX PERSONNEL EXERCISE CAUTION DURING PERFORMANCE OF SYSTEMS CHECKS OR TROUBLESHOOTING WITH A/P SERVO AMP CANISTER POWER ON AND ALSO THE PROPER USE OF TEST EQUIPMENT.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-86-04-3140F CIRCUIT BOARD-TRANSISTOR	FAR 27-41000-831	1F 820221	NO	NO	NO	895023
FAILURE MODE- FAIL DURING OPERATION. DURING X-1 DAY CHECKOUT, 1 MALFUNCTION WAS NOTICED IN THE VERNIER ENGINE NO. 2 YAW CHANNEL. CHECKOUT OF THE CANISTER SHOWED NO OUTPUT FROM THE VERNIER NO. 2 YAW CHANNEL. FAILURE ANALYSIS CONCLUDED THAT THE FAILURE WAS CAUSED BY A MELTED EMITTER LEAD ON TRANSISTOR Q3 (2N496) IN CIRCUIT BOARD AB41 DUE TO A SHORT TO- CIRCUTED OUTPUT EXTERNAL TO THE CANISTER.							
CORRECTIVE ACTION-UNKNOWN.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	3P-8D-04-3087-F AMPLIFIER	FAR 27-41000-842	112D 820219	WTR	NO	NO	895885
FAILURE MODE-ERRATIC OPERATION-DURING LOOP TEST SUSTAINER ENGINE MOVED IN YAW DIRECTION INTERMITTENTLY. NO FAILURE FOUND IN CYRO PACKAGE. MALFUNCTION PROBABLY DUE TO ERRATIC OPERATION OF TEST EQUIPMENT.							
CORRECTIVE ACTION-NONE-REPORTED FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	AD62-0013/DA648 AMPLIFIER	COMPOSITE-PRD/DPL 27-41000-849	112D 820217	PALCI-2	YES	NO	896431
FAILURE MODE-FAIL DURING OPERATION-SPURIOUS SUSTAINER ENGINE MOVEMENTS IN YAW WERE NOTED AT 206 AND 216 SECONDS (SE CO). IN THE LOOP TEST.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-SERVO AMPLIFIER WAS REPLACED. (FAR 9D-04-3087)							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-88-04-3133F CIRCUIT BOARD	FAR 27-41339-3	620216	SAN DIEGO O	NO NO	892148
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING FACTORY PRODUCTION VIBRATION THE ROLL FILTER HAD NO OUTPUT. FAILURE COULD NOT BE CONFIRMED. NO FAILURE WAS FOUND IN THE SUBJECT CIRCUIT BOARD. THE FAILURE OF THIS CIRCUIT BOARD COULD POSSIBLY BE DUE TO A MISMATCH IN THE ROLL-AMPLIFIER MODULE OR A DISCREPANCY BETWEEN THE PROCEDURE AND USE OF THE TEST EQUIPMENT.						
CORRECTIVE ACTION-UNKNOWN. DESIGN AND RELIABILITY ENGINEERS CALLED TO WITNESS FUTURE FAILURES OF THIS TYPE AT THE FACTORY IN ORDER TO IDENTIFY AND DEFINE THE PROBLEM AREA.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-88-04-3132F CIRCUIT BOARD-FILTER	FAR 27-41002-893	IF 620207	BYC	YES NO	897045
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE FAILURE WAS A REPORTED NO-GO FROM THE SPIN MOTOR ROTATION DETECTOR (SHRD) CIRCUIT. ANALYSIS REVEALED THAT THE FAILURE WAS IN THE SHRD CIRCUIT. TESTS INDICATED A FAULTY FILTER P/N 27-04948-1 IN CHANNEL 3 ON CIRCUIT BOARD P/N 27-43229-3. THE CAUSE COULD NOT BE DETERMINED BUT WAS PROBABLY DUE TO A POOR SOLDER CONNECTION ON PIN 1 OF THE FILTER CORRECTED DURING DISASSEMBLY.						
CORRECTIVE ACTION-THIS FILTER IS BEING REPLACED BY A NEW TYPE P/N 27-04948-3 WHICH IS AN IMPROVED VERSION BOTH IN DESIGN AND QUALITY. AS OF 4-10-62 NONE OF THE -1 FILTERS WERE IN STOCK. ALL BOARDS MANUFACTURED AFTER 4-10-62 WILL HAVE THE NEW-3 FILTER.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-88-04-3113F YAW FILTER CAPACITOR	FAR 27-41339-801	620204	FACTORY	YES NO	897739
FAILURE MODE-ERRATIC OPERATION. YAW FILTER IN CIRCUIT BOARD DISPLAYED AN ERRATIC OUTPUT. FAILURE ANALYSIS INDICATED THAT CAPACITOR CR-8 HAD A PARTIAL SHORT, POSSIBLY CAUSED BY CAPACITOR WIRE ENDS BEING PULLED AND AGGRAVATED BY HAND INSTALLATION.						
CORRECTIVE ACTION-60/C PERSONNEL WERE INSTRUCTED TO PROPERLY FORM WIRE ENDS OF RESISTORS CAPACITORS AND DIODES.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-88-04-3121F AMPLIFIER, TRANSISTOR	FAR 27-43200-1	31F 620131	DAFB	NO NO	
FAILURE MODE-FAILED DURING OPERATION. TRANSISTOR Q3 (2N486) WAS DAMAGED BY AN EXTERNAL SOURCE OF POWER TO THE SERVO AMPLIFIER.						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM	TEST/REPORT NUMBER	VEHICLE DATE	DATE	TIME	PRI	OTH	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE	TIME	PRI	OTH	VENDOR PART NO
CORRECTIVE ACTION-80/C PERSONNEL WERE CAUTIONED ABOUT MAKING TESTS WITH POWER ON REF (TWIST-566 SOF DATED PMAR. 19 68).							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-89-04-31167 CIRCUIT BOARD TRANSISTOR	FAR 27-41361-805	820126	FACTORY	YES		997792
FAILURE MODE-STRUCTURAL. CIRCUIT BOARD WAS REJECTED DURING PACKAGE LEVEL VIBRATION. TRANSISTOR Q-1 HAD A LOOSE EMITTER LEAD AND TRANSISTOR Q2 HAD A CRACK.							
CORRECTIVE ACTION-VENDOR WAS NOTIFIED TO STOP DELIVERING COMMERCIAL VERSIONS OF TRANSISTORS.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	RA-98-04-3077-7 AMPLIFIER	FAR 27-41000-847	121D 820125	ETR	NO	50/C NO	994219
FAILURE MODE-FAIL DURING OPERATION-ZERO OUTPUT FROM YAW CHANNEL-FAILURE PROBABLY CAUSED BY MISAPPLICATION OF 115 VA C 80 CPS TO THE CANISTER.							
CORRECTIVE ACTION-31TE PERSONNEL CAUTIONED TO USE EXTREME CARE DURING COMPLEX SYSTEM CHECKOUTS AND TROUBLESHOOTING.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-89-04-3114F FILTER	FAR 27-41339-801	820122	FACTORY	YES	50/C NO	997624
FAILURE MODE-FAILED DURING OPERATION-REJECTED BECAUSE OF EXCESSIVE OUTPUT UNBALANCE IN VERNIER/PITCH CHANNEL. FAILURE RE NOT CONFIRMED. POSSIBLE MISMATCH IN MODULATOR ASSEMBLY FILTER-(AC AND DC ASSEMBLY FILTER MODULE).							
CORRECTIVE ACTION-FAILURE NOT CONFIRMED.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-89-04-3139F	FAR 27-41363-805	820111	FACTORY	YES		991237
FAILURE MODE-FAT. TO OPERATE AT THE PRESCRIBED TIME. THE ROLL FILTER HAD NO OUTPUT DURING CANISTER TESTING. FAILURE NOT CONFIRMED. FAILURE COULD POSSIBLY BE DUE TO MISMATCH OF BOARDS IN THE ROLL FILTER-AMPLIFIER MODULE OR DISCREPANCIES IN PROCEDURE OR TEST EQUIPMENT.							
CORRECTIVE ACTION-UNKNOWN.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME	SITE DIP	PI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3111-F AMPLIFIER	FAR 27-41338-5	620110	FACTORY	YES	60/C NO	993370
FAILURE MODE-OUT OF TOLERANCE DURING FACTORY TEST.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED. POSSIBLE HUMAN OR TEST ERROR.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3084 CIRCUIT BOARD-DIOOP	FAR 27-41000-831	685 620110	WTR	YES	60/C NO	994224
FAILURE MODE-ERRATIC OPERATION. DURING MARCHE DECK 237-708 AN ERRATIC OUTPUT WAS INDICATED IN THE BOOSTER YAW CHANNEL EL. FAILURE WAS CAUSED BY OPEN DIODE CR-6 (1N4001) IN THE YAW MODULATOR ASSEMBLY ASAI BOARD. THE OPEN DIODE RESULTED FROM A CRACKED GLASS ENVELOPE.							
CORRECTIVE ACTION-MANUFACTURING PROCESS CHANGED TO REQUIRE THAT MINIMUM CONFORMAL COATING BE APPLIED WHERE COMPONENTS ARE REPLACED. IMPROVED TOOLING WAS FABRICATED AND MANUFACTURER OF FRAME MODULAR CHANGED TOOLS TO ELIMINATE VARIANCE IN WAVE PATTERN. NEW MANUFACTURING PROCESS SPECIFICATION ISSUED COVERING CONFORMAL COATING REQUIREMENTS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	CT-98-04-008F SERVOAMPLIFIER TRANSISTOR	FAR 55-41000-801	1040 620105	36A	YES	60/C NO	991377
FAILURE MODE-FAIL DURING OPERATION. UNIT REJECTED WHEN VERNIER NO.1 PITCH CHANNEL BECAME INOPERATIVE, CAUSING THE ENGINE TO GO HARD OVER. FAILURE ATTRIBUTED TO A DEFECTIVE TRANSISTOR IN THE VERNIER NO.1 PITCH CHANNEL. TWO SIMILAR CASES REPORTED IN FAR CT-98-04-014F, -020F.							
CORRECTIVE ACTION-DESIGN AND MANUFACTURING PROCESS CHANGES. TO IMPROVE THE TRANSISTOR, WERE INITIATED LATE IN 1961 BY THE VENDOR. FUTURE SHIPMENTS WERE TO BE PART* FABRICATED AFTER JAN.1,1962.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3080 CIRCUIT BOARD	FAR 27-41000-831	40C 620104	ETR	YES	60/C NO	993084
FAILURE MODE-ERRATIC OPERATION-DURING A/P READINESS CHECKS YAW INTEGRATOR SHOWED AN INTERMITTENT READOUT. FAILURE WAS NOT VERIFIED BY EXTENSIVE TESTS AND IT IS CONCLUDED THAT FAILURE WAS NOT IN CANISTER.							
CORRECTIVE ACTION-UNKNOWN. ORIGIN OF FAILURE NOT KNOWN.							

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DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VEHICLE NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9N-04-3141-F TRANSFORMER-WIRING.	FAR 27-04355-3	620103	ALTUS	YES NO	YES TRANSONIC
<p>FAILURE MODE-OPEN (ELECT)-THE EXCITATION TRANSFORMER WAS OPEN CIRCUITED BETWEEN PINS X AND Z. ANALYSIS CONFIRMED THE FAILURE. CAUSED BY TIGHT COILING. KINKING THE WIRE LEAD THUS BREAKING SEVERAL STRANDS. THE REMAINING STRANDS MELTED OPEN UNDER NORMAL CURRENT FLOW.</p>						
<p>CORRECTIVE ACTION-UNKNOWN. RAN WRITTEN RECOMMENDED THE VENDOR IMPROVE HIS MANUFACTURING AND INSPECTION TECHNIQUES TO PREVENT RECURRENCE OF THIS PROBLEM.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9N-04-3096-F CIRCUIT BOARD	FAR 27-45200-1	27F 611216	ALTUS	NO NO	NO CO/C
<p>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- BOOSTER NUMBER 1 AND 2 YAW FEEDBACK VOLTAGES FAILED TO GIVE NULL VOLTAGE DURING MACHINE CHECKOUT. COMPONENTS ON A3A1 AND A3A2 BOARDS FOUND BURNED. IT WAS CONCLUDED THAT FAILURE WAS EXTERNALLY INDUCED BY MISAPPLICATION OF HIGH VOLTAGE TO THE DC AMPLIFIER OUTPUT(SEE FAR A-9N-04-292F FOR PRIMARY CAUSE).</p>						
<p>CORRECTIVE ACTION-GO/C ISSUED TUX TO ALL SITES RECOMMENDING PRECAUTIONARY MEASURES TO PREVENT MISAPPLICATION OF HIGH VOLTAGES TO ANT SIGNAL INPUT OR OUTPUT POINTS IN ANY OF THE AUTOPILOT SYSTEMS.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9B-04-3023-F CIRCUIT BOARD-TRANSISTOR	FAR 27-41000-631	5F 611201	ETR	YES NO	YES NO
<p>FAILURE MODE-ERRATIC OPERATION. THE OUTPUT OF THE SUSTAINER YAW CHANNEL WAS ERRATIC AND INTERMITTENT. TRANSISTOR Q4 ON THE SUSTAINER YAW DC AMPLIFIER BOARD WAS INTERMITTENT AND HAD HIGHER THAN RATED COLLECTOR CUTOFF CURRENT. ONE CRYSTAL HOLDER SUPPORT WAS MISSING AND CRYSTAL MISPLACED.</p>						
<p>CORRECTIVE ACTION-VENDOR HAS INITIATED DURING LATE 1961 NEW CONTROLS TO IMPROVE THE UNIFORMITY, RELIABILITY, AND YIELD ON THESE TRANSISTORS. NO FUTURE SHIPMENTS WILL CONTAIN PARTS FABRICATED PRIOR TO 1962.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	SP-9D-04-3019-F CIRCUIT BOARD-TRANSISTOR	FAR 27-41000-829	114D 611130	WTR	NO NO	NO NO
<p>FAILURE MODE- FAIL DURING OPERATION. THE SUSTAINER ENGINE FAILED TO NULL DURING A/P SYSTEM TESTS, Q3 TRANSISTOR HAD SHORTED EMITTER TO COLLECTOR. Q4 TRANSISTOR HAD EMITTER LEAD MELTED OPEN ON CIRCUIT BOARD A3A1. CAUSED BY EXTERNAL SHORTS.</p>						

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DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
	CORRECTIVE ACTION-FIELD PERSONNEL ADVISED TO EXERCISE CAUTION DURING COMPLEX SYSTEMS CHECKS OR TROUBLESHOOTING WITH A/P SYSTEM POWER ON.						097061
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-31137 CIRCUIT BOARD-DIODE	FAR 27-43200-8	011109	FACTORY	YES NO		097730
	FAILURE MODE-STRUCTURAL. CIRCUIT BOARD CONTAINED CRACKED DIODES. THESE WERE ATTRIBUTED TO EXCESSIVE AMOUNTS OF CONFORMAL COATING. COATING IMPARTED A STRAIN ON DIODES.						
	CORRECTIVE ACTION-PERSONNEL IMPROVED METHOD OF APPLYING CONFORMAL COATING.						090955
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3010E AMPLIFIER	FAR 27-43200-1	3F 011020	03192	YES NO	INTERSTATE	097682
	FAILURE MODE-FAIL DURING OPERATION-NO BOOSTER ENGINES CONTROL SIGNALS FROM SERVOAMPLIFIER. CAUSE OF FAILURE, TRANSISTORS 93 AND 94 EMITTER LEADS OPEN.						
	CORRECTIVE ACTION-DETERMINED THAT SHORTING AMPLIFIER OUTPUT TO GROUND CAUSED LOSS OF TRANSISTORS. PERSONNEL WERE CAUTIONED TO EXERCISE CARE IN THE USE OF TEST EQUIPMENT PROBES DURING CHECKOUT OR TROUBLESHOOTING WITH POWER ON.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-3020-F CIRCUIT BOARD-TRANSISTOR	FAR 27-43200-1	3F 011019	WTR	YES NO		093776
	FAIL DURING OPERATION. DURING PERFORMANCE OF MAPCHE DECK 451, THE VERNIER ENGINE NO.1 WOULD NOT NULL. 93 HAD SHORTED EMITTER TO COLLECTOR. 94 EMITTER LEAD MELTED OPEN ON CRY BOARD AREA1 DUE TO THE SHORT.						
	CORRECTIVE ACTION-FIELD PERSONNEL ADVISED TO EXERCISE CAUTION DURING COMPLEX SYSTEMS CHECKS OR TROUBLESHOOTING WITH A/P SYSTEM POWER ON.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	HC-90-04-228-F CIRCUIT BOARD-CAPACITOR	FAR 27-43200-15	1090 011017	FACTORY	YES NO		
	FAILURE MODE-OUT OF TOLERANCE. THE UNIT WAS SENSITIVE TO HEAT AND WAS UNSTABLE. VISUAL CHECK REVEALED THAT CAPACITOR C1 WAS INSTALLED IN REVERSE POLARITY.						
	CORRECTIVE ACTION-UNKNOWN.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	HC-A9-04-3008P AMPLIFIER/TRANSISTOR	FAR 27-41000-11	1090 811016	SD	YES NO	YES NO
<p>FAILURE MODE-FAIL DURING OPERATION-NO BOOSTER ENGINES CONTROL SIGNALS FROM SERVOAMPLIFIER. CAUSE OF FAILURE, TRANSISTORS Q3 AND Q5 (2N5288) EMITTER/ COLLECTOR SHORT, DIODE CR3 (1N486A) OPEN. DETERMINED THAT SHORTING AMPLIFIER OUTPUT TO GROUND CAUSED LOSS OF TRANSISTORS AND DIODE.</p>						
<p>CORRECTIVE ACTION-FACTORY AND SITE PERSONNEL WERE CAUTIONED TO EXERCISE CARE IN THE USE OF TEST EQUIPMENT PROBES DURING CHECKOUT OR TROUBLE- SHOOTING WITH POWER ON.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9D-04-297-F AMPLIFIER-SERVO, YAW-VERNIER/TRANSISTOR 2N528A	FAR 27-41000-831	4F 811006	ETR	YES NO	YES NO
<p>FAILURE MODE-FAIL DURING OPERATION. THE A/P SERVOAMPLIFIER CANISTER FAILED DURING PERFORMANCE OF PROCEDURE 27-90336 -SK1A. THE VERNIER 2 YAW AMPLIFIER BECAME INOPERATIVE. ANALYSIS REVEALED THAT TRANSISTOR Q1 (2N528A) IN THE A6A1 CIRCUIT BOARD WAS DEFECTED AND CAUSED THE FAILURE. THE TRANSISTOR FAILED BECAUSE THE EMITTER LEAD WAS DISPLACED AT THE CRYSTAL JUNCTION AND BARELY MADE CONTACT.</p>						
<p>CORRECTIVE ACTION-THE RAYTHEON COMPANY SEMICONDUCTOR DIVISION HAS INITIATED DESIGN AND MANUFACTURING PROCESS CONTROL CHANGES TO IMPROVE THE UNIFORMITY, RELIABILITY, AND YIELD ON THEIR TRANSISTOR TYPES 2N528A AND 2N529A.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	RA-9B-04-3081-F FILTER-ELECTRICAL	FAR 27-41000-835	117D 811004	ETR	YES NO	YES NO
<p>FAILURE MODE-OUT OF TOLERANCE-INSUFFICIENT ATTENTION AND PHASE LAG IN PITCH; YAW AND ROLL FILTERS DURING MISSILE CHECKOUT. FAILURE NOT CONFIRMED AT S.D. PROBABLE CAUSE WAS CHECKOUT UNIT OR PROCEDURAL ERROR.</p>						
<p>CORRECTIVE ACTION-NEW SERVOAMPLIFIER.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9B-04-208P CIRCUIT BOARD CAPACITOR	FAR 27-41000-837	25E 810927	11	NO YES	NO YES
<p>FAILURE MODE-FAILED DURING OPERATION. THE A/D SERVOAMP-FILTER CANISTER FAILED DURING PERFORMANCE OF CHECKOUT PROCEDURE 27-90725-1. THE PITCH INTEGRATOR CHANNEL WAS INOPERATIVE. A LEAKY DIODE CR2 (SV18) WAS FOUND IN THE PITCH FILTER CIRCUIT BOARD, A6A1. THIS WAS NOT THE PRIMARY CAUSE OF THE FAILURE. CIRCUIT BOARD A6A1 P/N 27-41365-805 S/N 78 WAS FURTHER ANALYZED ON FAR A-9B-04-289 AFTER CAPACITOR C4 ON A REPLACEMENT A6A1 BOARD FAILED.</p>						
<p>CORRECTIVE ACTION-CORRECTIVE ACTION ON PROBLEM AREAS WAS TAKEN BY INSPECTION SUPERVISION HOLDING WEEKLY MEETINGS WITH</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
	TH INSPECTORS IN THE FACTORY. INDIVIDUAL CORRECTIVE ACTION IS TAKEN BY ISSUING AVO 8 TO INSPECTORS THAT ARE FOUND TO BE MAKING REPETITIVE MISTAKES (THIS CORRECTIVE ACTION FOR FAR A-98-04-289).						894315
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-289F CIRCUIT BOARD-AAA1	FAR 27-41365-805	25E 610927	11	YES NO		894314
FAILURE MODE-FAIL DURING OPERATION. THE A/P SERVOAMP-FILTER CANISTER FAILED DURING PERFORMANCE OF CHECKOUT PROCEDURE 27-90725-1. THE PITCH INTEGRATOR CHANNEL WAS INOPERATIVE. THE ITEM SWITCH AND SUMMING NETWORK CIRCUIT BOARD ASSEMBLY WAS ANALYZED AND IT WAS DETERMINED THAT A MAINLINE CLIP IN THE PRINTED CIRCUIT LEAD WAS THE PRIMARY CAUSE OF THE PITCH FILTER CIRCUIT BOARD FAILURE. (SEE FAR A-98-04-289.)							
CORRECTIVE ACTION-CORRECTIVE ACTION ON PROBLEM AREAS TAKEN BY INSPECTION SUPERVISION. (1) HOLDING WEEKLY MEETINGS WITH INSPECTORS IN THE FACTORY. (2) INDIVIDUAL CORRECTIVE ACTION IS TAKEN BY ISSUING AVO 8 TO INSPECTORS THAT ARE FOUND TO BE MAKING REPETITIVE MISTAKES. THE QUALITY ASSURANCE GROUP HAS INITIATED 6C8-270-20-5 REV. 10 TO VIBRATE INDIVIDUAL MODULE BOARDS AFTER REPAIR OR ON BOARD INTERMITTENT MALFUNCTIONS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AA61-0146/P1-501-00-23 SERVO AMPLIFIER	COUNTDOWN	25E 610927	11 -4200.	YES NO	GOC	893606
FAILURE MODE-ERRATIC OPERATION. THE BOOSTER PITCH INTEGRATOR CIRCUIT WAS NOT FUNCTIONING PROPERLY DURING INTEGRATOR SERVO GIMBALING TEST (NO FURTHER DETAILS RECORDED). THIS WAS DURING A LAUNCH ATTEMPT COUNTDOWN.							
SYSTEM EFFECT-ERRATIC OPERATION. (NO DETAILS ON NATURE OF ERRATIC OPERATION).							
VEHICLE EFFECT-COUNTDOWN DELAYED. THE SERVOAMPLIFIER PACKAGE WAS REPLACED AND THE COUNTDOWN WAS RESUMED. COUNTDOWN WAS LATER ABORTED DUE TO PROBLEM WITH CENTAUR GUIDANCE SYSTEM IN THE SCIENTIFIC PASSENGER POD.							
CORRECTIVE ACTION-REPLACE A-AMPLIFIER.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9F-04-3012F AMPLIFIER/DIODE	FAR 27-45200-1	53E 610919	WA'B	YES NO	TRANSITRON	898964
FAILURE MODE-FAIL DURATION OPERATION-BOOSTER ENGINE NO. 1 AND VERNIER ENGINE NO. 1 ROLL CHANNELS GAVE INCORRECT OUTPUTS WHICH CAUSED A NO-GO INDICATION ON MAPCHE, CARDS 74 AND 77. CAUSE, FAULTY ZENER DIODE IN ROLL AMPLIFIER-FILTER.							
CORRECTIVE ACTION-FAULTY FABRICATION BY VENDOR. IMPROVED QUALITY CONTROL BY VENDOR AS RESULT OF VENDOR CORRECTIVE ACTION REQUEST (VCAR) 1641-62. BETTER CONSTRUCTED DIODE IN2034 IN USE FROM VENDOR.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AC-61-0098/82-502-A3-01 VERNIER ONE PITCH SERVOAMPLIFIER	CAPTIVE	5E 610915	32 -2040	YES NO		099349
<p>FAILURE MODE-OPEN ELECTRICAL. OPEN CIRCUIT TO THE VERNIER ONE PITCH SERVO-AMPLIFIER, WHILE GROUND HYDRAULICS WERE BEING RUN UP.</p> <p>SYSTEM EFFECT-OPERATION DOES NOT START. UNABLE TO MULL THE VI ENGINE CAUSING IT TO MOVE HARD OVER IN POSITIVE PITCH.</p> <p>VEHICLE EFFECT-THE PROBLEM COULD NOT BE ISOLATED SO THE RUN WAS ABORTED.</p> <p>CORRECTIVE ACTION-THE ANOMALY REAPPEARED DURING RUN 503 COUNTDOWN. THIS TIME THE PROBLEM WAS ISOLATED AND CORRECTED DURING COUNT.</p>							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AE61-0918/FC-4CO-02-137 AMPLIFIER	COMPOSITE-FACTORY	137D 610901	96	FACTORY NO	NO	099034
<p>FAILURE MODE-FAIL DURING OPERATION. THE YAW INTEGRATOR WAS MULLED FROM 96 SECONDS UNTIL STAGING. THIS WAS CAUSED BY A FAULTY AGE YAW INTEGRATOR MULLING AMPLIFIER.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-REPLACED YAW INTEGRATOR MULLING AMPLIFIER IN THE AGE.</p>							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AE61-0698/FC-6CO-02-017 SERVO AMPLIFIER	COMPOSITE-FACTORY	17F 610829		NO NO		099082
<p>FAILURE MODE-OUT OF TOLERANCE. THE PITCH AXIS SERVO GAINS WERE GREATER THAN EXPECTED. TROUBLE TRACED TO FAULTY BUFFER AMPLIFIER IN AGE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE DELAYED. POST-COMPOSITE TESTING REQUIRED TO LOCATE SOURCE OF DIFFICULTY.</p> <p>CORRECTIVE ACTION-DEFECTIVE AMPLIFIER REPLACED IN AGE.</p>							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9H-04-292-F CIRCUIT BOARD A1A1/A1A2	FAR 27-45200-1	54E 610828	FOAB	YES NO		
<p>FAILURE MODE-FAILED DURING OPERATION-DURING PERFORMANCE OF PROCEDURE 27-90237-6. THE BOOSTER ENGINES VIBRATED AND FAILED TO HOLD A MULL POSITION WHEN HYDRAULIC PRESSURE WAS APPLIED. ANALYSIS FOUND THE ROLL FILTER MODULE TO BE DEFECTIVE. ON CIRCUIT BOARD A1A1, TRANSFORMER T2, DIODES CR3, CR7, CR12 AND CR16 AND ON CIRCUIT BOARD A1A2, DIODES CR2, CR3, CR8, CR10, CR13, AND TRANSISTOR Q3 WERE DEFECTIVE, PROBABLY CAUSED BY EXTERNAL SOURCE(S) AT FOAB.</p>							

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SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	81VE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
							894316
CORRECTIVE ACTION-NO CORRECTIVE ACTION WILL BE TAKEN AS IT WAS CONCLUDED THAT THE FAILURE WAS EXTERNALLY INDUCED. FOUR BBS AFB HAS BEEN SOLD OFF TO THE AIR FORCE, HENCE NO FURTHER INFORMATION CAN BE OBTAINED TO RESOLVE THIS PROBLEM. R EP FAP A-9N-04-3086 FOR SIMILAR PROBLEM.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9N-04-275F SERVOAMPLIFIER	FAR 27-41000-281	910823	ETR	YES NO		894317
FAILURE MODE-OUT OF SPECIFICATION. THE SUBJECT SERVOAMPLIFIER FAILED BECAUSE THE PITCH FREQUENCY RESPONSE WAS TOO HIGH FAILURE ANALYSIS DID NOT CONFIRM THE REPORTED FAILURE THE REPORTED MALFUNCTION WAS PROBABLY DUE TO HUMAN ERROR ON TEST SET ERROR AT ETR.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION. ETR HAS BEEN NOTIFIED AND IS TAKING THE NECESSARY CORRECTIVE ACTION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9F-04-280F	FAR 27-41000-813	93E 910823	WAFB	YES NO		894313
FAILURE MODE-FAILED DURING OPERATION. DURING PERFORMANCE OF MARCHE RUN OF DECK 237, THE BOOSTER 2 YAW FILTER-INTER ATOR GAIN WAS LOW. THE ITEM CANISTER IS AN ENGINEERING TEST SET USED FOR MAR TESTING. THE REPORTED FAILURE WAS NOT V EATIFIED IN FAILURE ANALYSIS. THE FAILURE WAS NOT IN THE CANISTER. ELECTRICAL NOISE IN THE MARCHE SYSTEM COULD CONCEI VABLY RESULT IN AN ERRONEOUS READOUT.							
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9B-04-237-F AMPLIFIER-YAW	FAR 27-41000-031	28E 910823	13	YES HUGHES AIRCRAF NO T		893775
FAILURE MODE-FAILED DURING OPERATION. THE UNIT EXHIBITED NO YAW WALLING OUTPUT DURING PERFORMANCE OF PROCEDURE 27-9 3930-BK-2D. FAILURE ANALYSIS FOUND THAT TRANSISTORS Q2 (NAT7534) AND Q3 (2N4880) ON WERE DEFECTIVE. Q2 WAS SHORTED AND T HE EXITTER JUNCTION LEAD ON Q3 WAS MELTED OPEN.							
CORRECTIVE ACTION-THE SEMICONDUCTOR DIVISION OF HUGHES AIRCRAFT HAS ISSUED SPEC. NO. 1-H DATED 11 SEPT 1961, WHICH SPECIFIES A THOROUGH MECHANICAL AND ELECTRICAL PREPRODUCTION AND POST PRODUCTION INSPECTION TESTS. THE VENDOR HAS AUT OMATED THE MANUFACTURE OF THIS TYPE OF TRANSISTOR TO ELIMINATE AN' HUMAN ERROR IN WORKMANSHIP.							

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SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A401-0137/PK-403-00-111	COUNTDOWN	1110 610823	ETR -3000	NO NO	
<p>FAILURE MODE-ELECTRICAL OPEN. SERVO PACKAGE PITCH CHANNEL WOULD NOT RESPOND TO GROUND COMMAND DUE TO OPEN WIRE IN GROUND CIRCUIT FOR PITCH SERVO INPUT TEST.</p> <p>SYSTEM EFFECT-OPERATION DOES NOT START. SYSTEM WOULD NOT RESPOND TO GROUND GENERATED PITCH CHANNEL ENGINE SIGNALING COMMANDS.</p> <p>VEHICLE EFFECT-COUNTDOWN DELAYED. PROBLEM ENCOUNTERED DURING HOLD. PICKUP FROM HOLD DELAYED.</p> <p>CORRECTIVE ACTION-CONTINUE OPERATION.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-9H-04-281-F AMPLIFIER-SERVO/TRANSFORMER	FAR 27-45200-1	28E 610819	FORBES	YES NO	
<p>FAILURE MODE-OPEN (ELECT). DURING A REVALIDATION OF PROCEDURE 27-47233, IT WAS DISCOVERED THAT THE POWER SUPPLY TRANSFORMER, PINS A-B OF PLUG U2-J3, WAS OPEN CIRCUITED. ANALYSIS CONFIRMED THE FAILURE AND CONCLUDED THAT A WIRING PROBLEM EXISTED AT THE COMPLEX WHICH SHORTED THE VERNIER NUMBER 1 PITCH AMPLIFIER OUTPUT EXTERNAL TO THE CANISTER. THIS CAUSED TRANSFORMER T1, TRANSISTOR 84 (2M498) AND DIODE CR4 (1N 488A) TO FAIL.</p> <p>CORRECTIVE ACTION-FIELD PERSONNEL HAVE BEEN ADVISED TO CHECK THE INTERCONNECTING CABLE HARNESS FOR SHORTS. IN ADDITION, FIELD PERSONNEL HAVE BEEN ADVISED TO EXERCISE CAUTION DURING PERFORMANCE OF COMPLEX SYSTEMS CHECKS OR TROUBLESHOOTING WITH THE SYSTEM POWER ON.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-9H-04-3021-F TRANSFORMER	FAR 27-04355-3	610819	PAFB	YES NO	
<p>FAILURE MODE-FAIL DURING OPERATION. DURING VOLTAGE CHECKOUTS, THE TRANSFORMER WAS NOTED TO BE DISSIPATING EXCESSIVE HEAT. THE PRIMARY WAS PARTLY OPEN-CIRCUITED AND THE SECONDARY WAS PARTIALLY SHORTED TO THE PRIMARY. CAUSE UNDETERMINED, PROBABLE EXTERNAL SHORT OF SECONDARY WINDING.</p> <p>CORRECTIVE ACTION-NONE TAKEN AS EXACT CAUSE WAS NOT DETERMINED AND NO FURTHER INFORMATION WAS AVAILABLE AS FORBES AFB HAS BEEN SOLD TO THE AIR FORCE.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-9H-04-280 AMPLIFIER-SERVO, PITCH/TRANSFORMER	FAR 27-45200-1	28E 610819	FORBES	NO NO	
<p>FAILURE MODE-FAIL TO OPERATE. DURING THE PERFORMANCE OF PROCEDURE 27-98233 THE ENGINES FAILED TO SIGNAL. A CHECKOUT OF THE CANISTER REVEALED NO OUTPUT FROM ANY OF THE AMPLIFIERS. ANALYSIS CONCLUDED THAT TRANSFORMER T1 FAILED DUE TO AN EXTERNAL SHORT IN THE VERNIER PITCH OUTPUT. THIS EXTERNAL SHORT ALSO DAMAGED TRANSISTORS 83, 84 (BOTH 2M498) AND DIODE CR4 (1N488A).</p>						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
	CORRECTIVE ACTION-FIELD PERSONNEL HAVE BEEN CAUTIONED TO EXERCISE CAPE DURING SYSTEMS CHECKS OR TROUBLESHOOTING WITH M A/P SYSTEM POWER ON. MEASURING VOLTAGES WITH THE VOLT-OHMETER FUNCTION IN THE AMPERE OR LOW OHM SCALES CAN HAVE A DAMAGING EFFECT ON CANISTER OUTPUT. IT ALSO OVERLOADS THE POWER SUPPLY. THE USE OF OSCILLOSCOPE, VTVM, OR ANY METER WITH COMMONCHASSIS GROUND CAN ALSO CAUSE DAMAGE IF PROBED WITH THE WRONG TEST LEAD					
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-90-04-294F AMPLIFIER-SERVO, BOOSTER 2/TRANSFO 27-49200-1 RNERP/N27-04189-3	FAR 3F 910811	WTR	YES NO		
	FAILURE MODE-FAILED DURING OPERATION-DURING PERFORMANCE OF MARCHE DECK 401, CARD 494, THE BOOSTER 2 PITCH CHANNEL F AILED TO MAL. FAILURE ANALYSIS REVEALED THAT TRANSFORMER T1 P/N27-04189-3 ON CIRCUIT BOARD AS42 OF BOOSTER 2 AMPLIF IER WAS DEFECTIVE. TRANSFORMER T1 FAILURE WAS DUE TO INSULATION BREAKDOWN AT HIGH TEMPERATURE, 176 DEGREES F. AT LOW TEMPERATURES, NO DEFECT WAS EVIDENT.					
	CORRECTIVE ACTION-NO CORRECTIVE ACTION DUE TO (1) LOW REJECTION RATE IN RECEIVING INSPECTION, (2) NO ELECTRICAL FAIL URE HISTORY IN THE FACTORY, AND (3) THIS FAILURE BEING THE FIRST RECORDED FOR THIS TRANSFORMER. Q C HAS BEEN INFORME D AND SURVEILLANCE ON THIS PART BY 60/C WILL BE MADE TO INSURE THAT NO DEFECTIVE TRANSFORMERS ARE USED.					
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A481-0111/P8-4CNO-03-104/C-2 DEMULATOR-PITCH TRANSFORMER	COMPOSITE-PRD/DPL 104D 910810	38A	YES NO		
	FAILURE MODE-FAIL TO OPERATE. FAILURE OF A TRANSFORMER OF THE PITCH CHANNEL DEMULATOR IN THE SERVO CANISTER CAUSE D THE ENGINES NOT TO RESPOND IN PITCH.					
	SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. LOSS OF THE PITCH CANNEL DEMULATOR CAUSED LOSS OF COMMANDS TO THE ENGINES IN THAT CHANNEL.					
	VEHICLE EFFECT-NONE.					
	CORRECTIVE ACTION-REPLACED SERVO CANISTER.					
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A481-0111/P8-4CNO-03-104/C-2 TRANSFORMER	COMPOSITE-PRD/DPL 104D 910810	ETR	YES NO		
	FAILURE MODE-ERRATIC OPERATION. THREE ERRONEOUS RECO SIGNALS OCCURRED DURING A HOLD ALONG WITH RESULTANT SWITCH OPE RATIONS. THIS MAY HAVE BEEN CAUSED BY A BAD PITCH DEMULATOR TRANSFORMER GENERATING NOISE ON 400 CYCLE POWER AND SC RAMBLING THE PROGRAMMER.					
	SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. ERRONEOUS RECO SIGNALS.					
	VEHICLE EFFECT-COMPOSITE DELAYED. HOLD, DURING WHICH PROBLEM OCCURRED, WAS EXTENDED.					
	CORRECTIVE ACTION-UNKNOWN.					

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	GIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	WITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-9F-04-2647	FAR 27-45200-1	610810	WARREN	NO	NO
<p>FAILURE MODE-OUT OF TOLERANCE. THE SUBJECT SERVOAMPLIFIER RECEIVED A MAPCHE NO-60 INDICATING HIGH PITCH INTEGRATOR GAIN. FAILURE ANALYSIS DID NOT CONFIRM ANY FAILURE IN THE CANISTER. THE MAPCHE NO-60 WAS PROBABLY DUE TO EXCESSIVE NOISE EMANATING FROM THE SURROUNDING FACILITY, IMPROPER GROUND INSTALLATION OR IMPROPER DECK PROGRAMMING.</p>						
CORRECTIVE ACTION-NONE.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-9F-04-278-F CIRCUIT BOARD ASAS/RESISTOR	FAR 27-45200-1	53E	WALKER	NO	NO
<p>FAILURE MODE-FAILED DURING OPERATION-DURING PERFORMANCE OF MAPCHE PROCEDURE 27-98237-6, NO-60S WERE RECEIVED INDICATING INCORRECT GAINS ON DOOSTER AND SUSTAINER YAW CHANNELS. ANALYSIS REVEALED THAT PRECISION RESISTOR R11 ON CIRCUIT BOARD ASAS WAS DEFECTIVE. IT WAS CONCLUDED THAT IMPROPER FORMING OF THE WIRE LEAD AT THE FACTORY CAUSED THE DEFECT.</p>						
<p>CORRECTIVE ACTION-FOUR FORM TOOLS (FNT0) TO 0-79018 SPECIFICATION FOR FORMING OF WIRE END LEADS ON DIODES. RESISTOR S1 AND CAPACITORS HAVE BEEN FURNISHED. AN AUTOFORMER, MODEL UF2RL 3/N 189 WILL ALSO BE SUPPLIED TO THE FACTORY.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A-9F-04-273-F CIRCUIT BOARD ASAS/TRANSISTOR-2M49	FAR 27-45200-1	53E	WATB	NO	NO
<p>FAILURE MODE- FAIL DURING OPERATION. THE ITH CANISTER FAILED DURING PERFORMANCE OF MAPCHE PROCEDURE 27-98237-6. NO -60S WERE RECEIVED ON VERNIER ENGINE 1 PITCH MULL AND STATIC GAIN CHECKS. TRANSISTORS 23 AND 24 (2M49) ON VERNIER ENGINE 1 PITCH CHANNEL ASAS CIRCUIT BOARD WERE SHORTED COLLECTOR TO EMITTER. THIS WAS CAUSED BY SHORTING THE OUTPUT C TERMINAL TO THE CANISTER DURING CHECKS OR TROUBLE SHOOTING.</p>						
<p>CORRECTIVE ACTION- FIELD PERSONNEL HAVE BEEN ADVISED TO EXERCISE CAUTION DURING SYSTEM CHECKS OR TROUBLE SHOOTING WITH THE A/P SYSTEM POWER ON. MEASURING VOLTAGES WITH VOLT-Ohmmeter FUNCTION IN AMPERE OR LOW OHM SCALES HAS A DAMAGING EFFECT ON THE SERVOAMP CANISTER OUTPUT. THE USE OF OSCILLOSCOPE, VTVM, OR ANY METER WITH A COMMON CHASSIS GROUND WILL ALSO HAVE A DAMAGING EFFECT WHEN PROBED WITH WRONG LEAD.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	AE61-0081/FC-SC0-03-030 AMPLIFIER	COMPOSITE-FACTORY	30E	FACTORY	NO	NO
<p>FAILURE MODE-FAIL DURING OPERATION. NEGATIVE SUSTAINER SERVO BIAS WAS TOO HIGH DUE TO FAULTY PITCH BUCKOUT AND BUST AIRWER PITCH ISOLATION AMPLIFIERS.</p>						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
VEHICLE EFFECT-COMPOSITE RESCHEDULED.							096316
CORRECTIVE ACTION-THE PITCH BUFFER AND ISOLATION AMPLIFIERS WERE REPLACED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-282F TRANSFORMER	FAR 27-43200-1	23E 610726	FAFB	NO NO		096317
FAILURE MODE-FAILED DURING OPERATION. THE YAW CHANNEL HAD NO OUTPUT DURING THE PERFORMANCE OF APACHE PROCEDURE 27-98 220-S. CARD 143. ANALYSIS INDICATED THAT TRANSFORMER T2 WAS DEFECTIVE. FROM RESULTS OF SPECIAL TESTS, IT APPEARS THAT A MISAPPLICATION OF POWER TO THE 115VOLT PHASE A INPUT MAY HAVE OCCURRED DURING TROUBLE SHOOTING.							
CORRECTIVE ACTION-CORRECTIVE ACTION IS NOT APPLICABLE AS IT WAS CONCLUDED THAT THE CANISTER FAILED DUE TO UNDETERMINED EXTERNAL MEANS, AND FAFB HAS BEEN SOLD TO THE AIR FORCE. THE FIELD WAS INFORMED OF THE TEST RESULTS.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-98-04-3015-F AMPLIFIER-FILTER	FAR 27-43200-1	610724	WAFB	NO NO		096318
FAILURE MODE-FAIL DURING OPERATION-LOW FILTER INTEGRATOR GAIN. DETECTED BY MAPCHE CAUSING A NO-GO INDICATION.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION. TESTING DISCLOSED NO MALFUNCTIONS IN THE ITEM. ASSUMED MAPCHE GAVE FAULTY INDICATION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	CT-98-04-004F SERVOAMPLIFIER-CIRCUIT BOARD	FAR 55-41000-1	104D 610721	38A	NO NO		096319
FAILURE MODE-FAIL DURING OPERATION. UNIT REJECTED, DURING X-1 DAY CHECKS, WHEN IT WAS NOT POSSIBLE TO GIMBAL ANY ENGINE. THE MODULATOR CIRCUIT BOARD WAS REPLACED, WHICH ALSO FAILED. BOTH CIRCUIT BOARDS CONTAINED DAMAGED TRANSFORMER S. DIODES AND TRANSISTORS. UNACCOUNTED FOR TRANSIENTS, FROM AN EXTERNAL SOURCE, WERE CONSIDERED RESPONSIBLE FOR FAILURE.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE WAS NOT DETERMINED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-247	FAR 27-43200-1	21E 610719	ETR	YES NO		
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING CHECKOUT OF THE MISSILE ALL THREE CHANNELS OF THE ITEM CANISTER WOULD NOT MOVE FROM NULL. THE FAILURE WAS NOT CONFIRMED. THE FAILURE WAS ATTRIBUTED TO HUMAN ERROR OR TO A MALFUNCTION IN THE GROUND SUPPORT EQUIPMENT.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-RELIABILITY IS MONITORING THIS TYPE OF CANISTER FAILURE IN AN EFFORT TO FIND CAUSE OF THE FAILURE S. PERSONNEL IN THE FIELD ARE REQUESTED TO CHECK ALL REPORTED FAILURES PRIOR TO REJECTING PARTS TO INSURE THE FAILURE E HAS OCCURRED IN THE REJECTED PART.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-98-04-245-F AMPLIFIER	FAR 27-45200-1	610719	FAIRCHILD D	NO	60/C
FAILURE MODE-OUT OF TOLERANCE. THE SUBJECT SERVOMPAMPLIFIER WAS REJECTED WHEN NO-508 WERE RECEIVED ON MAPCHE DECK 237 -705. THE VERNIER NUMBER 1 AND NUMBER 2 ROLL FILTER INTEGRATOR GAINS WERE OUT OF TOLERANCE ON THREE CHANNELS. FAILURE E ANALYSIS INDICATED NO SERVOMPAMPLIFIER FAILURE. TROUBLESHOOTING AT FAIRCHILD REVEALED WIRING PROBLEMS IN THE MAPCHE JUNCTION BOX WHICH WERE CORRECTED. RETURN WAS SUCCESSFUL.						
CORRECTIVE ACTION-NONE.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A-9F-04-250-F AMPLIFIER-TRANSISTOR	FAR 27-45200-1	47E 610719	WARREN	YES NO	
FAILURE MODE- FAIL DURING OPERATION. PROCEDURE 27-96237-7, DECK 237-708, CARD 20 GAVE A NO-60 INDICATION FOR VERNIE R ENGINE 2 IN PITCH HALL. FAILURE ANALYSIS VERIFIED THAT THE VE 2 PITCH AMPLIFIER WAS INOPERATIVE. TRANSISTOR Q3 (2N 498) IN A8A1 CIRCUIT BOARD WAS SHORTED FROM EMITTER TO COLLECTOR. THE INCIDENT CASE OF THE TRANSISTOR WAS TOUCHING Y HE JUNCTION LEAD BINDING POSTS CAUSING THE SHORT.						
CORRECTIVE ACTION-NO CORRECTIVE ACTION CAN BE INITIATED AS THE RESPONSIBLE AREA IN WHICH THE TRANSISTOR WAS DAMAGED COULD NOT BE DETERMINED. INSPECTION SUPERVISION AT THE FACTORY HAVE BEEN INFORMED OF THIS PROBLEM.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	A651-0497/FC-SCO-01-J12 RELAY	COMPOSITE-FACTORY	12F 610719	FACTORY	NO	NO
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME- THE BANGBORN RECORDING FAILED TO INDICATE A ROLL SERVO BIAS AND INT EGRATOR EXERCISE. THE TEST EQUIPMENT MALFUNCTIONED AS UNLATCHING RELAY (K707) FAILED.						
SYSTEM EFFECT-OPERATION DOES NOT START. FAILED RELAY IN AGE PREVENTED OPERATION FROM STARTING.						
VEHICLE EFFECT-COUNTDOWN ON COMPOSITE DELAYED- POST-COMPOSITE TESTING REQUIRED TO LOCATE SOURCE OF TROUBLE.						
CORRECTIVE ACTION-THE RELAY WAS REPLACED AND A RETEST WAS PERFORMED WHICH INDICATED SATISFACTORY RESPONSE.						

GENERAL DYNAMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPLOOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME	SITE DIP TIME	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-248 CIRCUIT BOARD TRANSISTOR	FAR 27-43200-1	48E 610630	WARREN YES	NO	
<p>FAILURE MODE- FAIL DURING OPERATION. THE ITEM PACKAGE FAILED DURING PERFORMANCE OF MAPCHE PROCEDURE 27-98233-3 IDEC RS 233-7023. THE PACKAGE WAS REPORTED TO HAVE LOST THE OUTPUTS ON ALL CHANNELS. FAILURE ANALYSIS CONCLUDED THAT SHORTING THE OUTPUT CIRCUIT EXTERNAL TO THE CANISTER DURING PERFORMANCE OF COMPLEX SYSTEMS CHECKS AND/OR TROUBLE SHOOTING METHODS CAUSED THE CANISTER FAILURE. BOOSTER 3 PITCH AMPLIFIER WAS INOPERATIVE ON THE ASAI CIRCUIT BOARD 03, 05 AND 0 CRS TRANSISTORS WERE FAULTY.</p>						
<p>CORRECTIVE ACTION-FIELD PERSONNEL HAVE BEEN ADVISED TO EXERCISE CAUTION DURING COMPLEX SYSTEM CHECKS ON TROUBLESHOOTING WITH A/P SYSTEM POWER ON. MEASURING OUTPUT VOLTAGES WITH THE VOLT-OHMETER FUNCTION IN THE AMPERE OR LOW OHM SCALAS HAVE A DAMAGING EFFECT ON THE SERVOAMP CANISTER OUTPUT. THE USE OF OSCILLOSCOPE, VTVM OR ANY METER WITH A COMMON CHASSIS GROUND WILL ALSO HAVE A DAMAGING EFFECT WHEN PROBED WITH THE WRONG LEAD.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	A-9K-04-241-F AMPLIFIER/TRANSISTOR	FAR 27-43200-1	14E 610629	FAIRCHILD D	YES NO	
<p>FAIL TO OPERATE. THE MAPCHE A/P TEST PROCEDURE/DECKS 233-237/REVEALED THAT VERNIER 2 YAW AND PITCH AND VERNIER ENG01 ME NO. 1 PITCH COMMANDS FAILED TO GINGAL THE ENGINES AS PRESCRIBED. FAILURE ANALYSIS REVEALED VEL PITCH, ASAI BOARD AMPLIFIER NO.2 VEL PITCH, ASAI BOARD AMPLIFIER NO. 1 AND VEL YAW, ASAI BOARD AMPLIFIER NO. 3 DEFECTIVE. 43/2M486/2EM1 TIER LEADS MELTED OPEN, CR4/1M486/2 BURNED OPEN/4 /VER YAW, VEL PITCH/ 03/VEL PITCH, VEL PITCH/EMITTER TO COLLECTOR SHORTED.</p>						
<p>CORRECTIVE ACTION-FIELD PERSONNEL HAVE BEEN ADVISED TO EXERCISE CAUTION DURING COMPLEX SYSTEM CHECKS OR TROUBLE SHOOTING WITH A/P SYSTEM POWER ON. MEASURING OUTPUT VOLTAGES WITH VOLT-OHMETER FUNCTION IN AMPERE OR LOW OHM SCALAS HAS A DAMAGING EFFECT ON THE SERVO AMP CANISTER OUTPUT. THE USE OF OSCILLOSCOPE, VTVM, OR ANY METER WITH A COMMON CHASSIS GROUND WILL ALSO HAVE A DAMAGING EFFECT WHEN PROBED WITH THE WRONG LEAD.</p>						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AA61-0073/P1-SCO-01-17 CONTROL ROLL SERVO AMPLIFIER	COMPOSITE-B FACT	17E 610602	11/ETR YES	50/C NO	
<p>FAILURE MODE-OUT OF TOLERANCE. DURING THE FACT COUNTDOWN IT WAS DETERMINED THAT THE ROLL SERVO AMPLIFIER WAS DEFECTIVE. (NO SPECIFIC DATA).</p>						
<p>SYSTEM EFFECT-ERRATIC OPERATION.</p>						
<p>VEHICLE EFFECT-COMPOSITE RESCHEDULED. FACT TEST WAS RERUN BUT ASSIGNED THE SAME TEST NUMBER P1-SCO-01-17.</p>						
<p>CORRECTIVE ACTION-REPLACED CONTROL AMPLIFIER.</p>						

GENERAL CHIEFS
CONVAIR DIVISION

10 JUN 1956

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP TIME DIF	SITE TIME DIF	PRI OIM	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	9K-04-218 AMPLIFIER-TRANSISTOR	FAR 27-45200-1	15E 810313	FAIRCHILD YES D NO		095103
FAILURE MODE-FAIL DURING OPERATION. THE FAILURE WAS CAUSED BY A SHORT-CIRCUIT PLACED ON THE OUTPUT CIRCUIT OF THE PITCH-YAW AMPLIFIER. TRANSISTOR Q-3 ON CIRCUIT BOARD A9-04 SHORT CIRCUITED FROM EMITTER TO COLLECTOR. TRANSISTOR Q-3H AD AN OPEN-CIRCUIT IN THE EMITTER LEAD CAUSED BY EXCESSIVE CURRENT.						
CORRECTIVE ACTION-NONE-NO CORRECTIVE ACTION IS POSSIBLE BECAUSE THE ORIGIN OF THE FAILURE IS NOT KNOWN.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	A9-04-226 CIRCUIT BOARD, DIODE	FAR 27-41360-3	93D 810303	FACTORY YES 60/C NO		095157
FAILURE MODE-OUT OF TOLERANCE. A SHORTED DIODE CR3 (3Y806) OF THE U8A81 MODULE BOARD OF THE SERVO AMPLIFIER CAUSED THE AN OUT OF SPECIFICATION OUTPUT FROM THE (-) 20 VOLT POWER SUPPLY.						
CORRECTIVE ACTION-THE INSPECTION PROCEDURE GROUP HAS BEEN ENFORCING MORE STRINGENT INSPECTION AND TESTING PROCEDURES TO WEED OUT ANY DEFECTIVE COMPONENTS BEFORE RELASING TO FACTORY.						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	AE61-0401/FC-SC0-01-047 AMPLIFIER-CAPACITOR	COMPOSITE-FACTORY	47E 810301	FACTORY YES NO		087079
FAILURE MODE-FAIL DURING OPERATION-SUSTAINER PITCH FEEDBACK INDICATED ENGINE OVERSHOOT AT STAGING. INTEGRATOR NULLING AND GAIN CHANGE FUNCTION WAS CAUSED BY STATIC CHARGE BUILDUP ON THE GAIN CHANGE CAPACITOR.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-NONE-A MODIFIED SERVO CANISTER WAS TO BE INSTALLED AT THE SITE.						
CORRECTIVE ACTION-ECP 1113 WAS INITIATED TO ADD A BLEEDER RESISTOR TO THE INTEGRATOR CAPACITOR.						
AUTOPLOT-SQUARE A/B FILTER AND SERVOAMP	A-9K-04-234-F AMPLIFIER-PITCH, SUSTAINER/TRANSIS TOR	FAR 27-45200-1	14E 810420	FACTORY YES RAYTHEON CO. NO		
FAILURE MODE-FAIL DURING OPERATION. THE AMPLIFIER FAILED DURING PERFORMANCE OF TEST PROCEDURE 27-98233-3 (APACHE DEC R 233-72) THE SUSTAINER ENGINE FAILED TO POSITION OR NULL IN PITCH. FAILURE ANALYSIS REVEALED THAT TRANSISTOR Q1 (2N284) IN THE A8A1 CIRCUIT BOARD OF THE SUSTAINER PITCH AMPLIFIER HAD AN EXCESSIVE REVERSE LEAKAGE FROM COLLECTOR TO BASE.						
CORRECTIVE ACTION-CORRECTIVE ACTION HAS BEEN INITIATED TO HAVE THE VENDOR ELIMINATE THE UNRELIABLE SITUATION THAT EXISTS ON THIS TYPE OF TRANSISTOR AS TO WORKMANSHIP AND QUALITY CONTROL VIA WAR 9K-04-078. 1PK RAYTHEON CO HAS INITIA						

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GENERAL UNITS
CONVAIR DIVISION

13 JUN 1968

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP L TA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PR1 OTH	VENDOR NAME VENDOR PART NO	
TED DESIGN AND MANUFACTURING PROCESS CONTROL CHANGES TO IMPROVE THE UNIFORMITY, RELIABILITY AND YIELD ON TRANSISTOR TYPES 2N329A AND 2N329A.							092133
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-819 AMPLIFIER-TRANSISTOR	FAR 27-45800-1	41E 610427	FORBES	NO		093104
FAILURE MODE-SHORT SELECT-TRANSISTORS 8-3 AND 8-5 ON CIRCUIT BOARD AS-AS AMPLIFIERS 1 AND 2 WERE SHORT CIRCUITED FROM COLLECTOR TO EMITTER DUE TO A SHORT CIRCUIT PLACED ON THE OUTPUT CIRCUIT OF THE AMPLIFIER.							
CORRECTIVE ACTION-NONE-NONE CORRECTIVE ACTION BECAUSE ORIGIN OF THE FAILURE IS NOT KNOWN.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	90-04-813	FAR 27-45800-1	27E 610417	FAIRCHILD	YES NO		093084
FAILURE MODE-ERRATIC OPERATION-THE VERNIER AND SUSTAINER ENGINES SIGNALLED WITH LOW AMPLITUDE DURING THE BOOSTER 6IN BALLING TEST AND BOOSTER ENGINE NO. 2 SIGNALLED DURING SUSTAINER AND VERNIER ENGINE SIGNALING TEST.							
CORRECTIVE ACTION-NONE.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	AE61-0272/FC-900-01-043 AMPLIFIER-CAPACITOR	COMPOSITE-FACTORY	43E 610412	FACTORY	YES NO		097678
FAILURE MODE-FAIL DURING OPERATION-SUSTAINER PITCH FEEDBACK INDICATED ENGINE OVERSHOOT AT STAGING INTEGRATOR MULLIN G AND GAIN CHANGE FUNCTION, CAUSED BY STATIC CHARGE BUILDUP ON THE GAIN CHANGE CAPACITOR-THIS WAS A REPETITIVE PROBLEM ON NUMEROUS EARLY E SERIES MISSILES.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.							
VEHICLE EFFECT-NONE-SERVO CAMISTER WAS TO BE REPLACED PRIOR TO FLIGHT.							
CORRECTIVE ACTION-ECP 1113 WAS INITIATED TO ADD A BLEEDER RESISTOR TO THE INTEGRATOR CAPACITOR.							
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	AE61-0281/FC-800-01-003 AMPLIFIER-CAPACITOR	COMPOSITE-FACTORY	3F 610321		YES NO		
FAILURE MODE-FAIL DURING OPERATION. DATA INDICATED A POSITIVE SUSTAINER PITCH AXIS OVERSHOOT OF 2.7 VOLTS AT STAGING 6 INTEGRATOR GAIN CHANGE AND MULLING FUNCTIONS. THIS MOVEMENT WAS CAUSED BY AN ACCUMULATIVE STATIC CHARGE ON THE GAIN CHANGE CAPACITOR CAUSED IN TURN BY CONTROL TRANSISTOR LEAKAGE CURRENT.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-STATIC. CHARGE ON CAPACITOR CAUSED EXCESSIVE PITCH STEERING OVERSHOOT.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED.							

18 JUN 1966

GENERAL AMICS
CONVAIR DIVISION

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-ECP 1113 CORRECTED PROBLEM.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-191	FAR 27-41000-813	19E 610301	FAPB	YES NO	
FAILURE MODE-ERRATIC OPERATION. DURING THE HYDRAULIC FILL AND BLEED TEST THE BOOSTER ENGINES WERE OBSERVED TO BE 61 DEBALLING INSTEAD OF THE PROGRAMMED SUSTAINER VERNIER ACTION.						
CORRECTIVE ACTION-NONE. FAILURE NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	AE80-0938/P5-501-00-09 TRANSDUCER-FUNCTIONAL	FLIGHT	9E 610224	13 110	NO YES	
FAILURE MODE-OUT OF EXPECTED TEST VALUE-TELEMETRY DATA INDICATED THAT THE V2 VERNIER ENGINE DRIFTED ONE DEGREE DURI NG BOOSTER PHASE. THIS DRIFT IS ATTRIBUTED TO AERODYNAMIC HEATING OF THE FEEDBACK TRANSDUCER OR THE TELEMETRY TRANSO UCER WHICH ARE LOCATED WITHIN THE VERNIER FAIRING.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS-AERODYNAMIC HEATING OF THE FEEDBACK TRANSDUCER WOULD PRODUCE IMPROPER ANALOG SIGNALS TO THE GYRO PACKAGE. (A SIMILAR EFFECT WOULD RESULT FROM HEATING THE V2 ENGINE POSITION TELEMETRY TRANSDUCER 1).						
VEHICLE EFFECT-NONE-THE INDICATED DRIFT HAD NO APPARENT EFFECT ON VEHICLE PERFORMANCE. THE RE-ENTRY VEHICLE IMPACTE D IN THE PLANNED TARGET AREA.						
CORRECTIVE ACTION-FUTURE VEHICLES WILL HAVE PRODUCTION TYPE COVER PLATES OVER THE VERNIER PITCH CLAMSHELL FAIRING C LEARANCE CUTOUTS TO DECREASE AERODYNAMIC IMPINGEMENT INSIDE THE FAIRING.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-217 TRANSFORMER	FAR 27-41000-817	77D 610222	ETR	YES NO	
FAILURE MODE-OUT OF TOLERANCE-THE GERTSCH RATIO TRANSFORMER READING WAS HIGH INDICATING AN UNBALANCE IN THE MODULAT OR OR DEMODULATOR CIRCUITS. THE FAILURE WAS NOT CONFIRMED.						
CORRECTIVE ACTION-NONE-FAILURE WAS NOT CONFIRMED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-175 DISPLACEMENT GYRO AMPLIFIER	FAR 27-41008-829	97D 610222	WTR	NO NO	
FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. DURING AN APCHE DECK RUN THE ROLL DISPLACEMENT GYRO FINE H EATER INDICATION REMAINED AT 118 VOLTS. FAILURE WAS DUE TO AN INTERNALLY DAMAGED MAGNETIC AMPLIFIER HEATER CONTROL B ELIEVED GROUNDED INADVERTENTLY DURING PREVIOUS TESTING. A PIECE OF SOLDER WAS FOUND LOOSED BETWEEN TWO APCHE RELAY C						

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
CONTACTS SUPPLYING 28V DC CONTINUOUSLY TO THE GYRO HEATER.							994760
CORRECTIVE ACTION-RCA APPRIEZED OF THE FAILURE AND ITS CAUSE. RCA INITIATED ACTION TO IMPROVE THEIR QUALITY CONTROL.							
AUTOPILOT-SQUARE-A/S FILTER AND SERVOAMP	AE81-0029/FC-SCO-03-031	COMPOSITE-FACTORY	3:2 810214	FACTORY	NO NO		992224
FAILURE MODE-OUT OF TOLERANCE. LOW BIAS CONDITION OBSERVED ON SEVERAL FLIGHT CONTROL ENGINE MOVEMENTS. PROBLEM TRACED TO GNE.							
SYSTEM EFFECT-OPERATION TOO LOW-FLIGHT CONTROL SYSTEM GAINS TOO LOW.							
VEHICLE EFFECT-COMPOSITE DELAYED- POST COMPOSITE TESTS REQUIRED TO DEMONSTRATE SATISFACTORY OPERATION.							
CORRECTIVE ACTION-TEST EQUIPMENT RETURNED TO LAB, ON INSPECTION REJECT.							
AUTOPILOT-SQUARE-A/S FILTER AND SERVOAMP	90-04-172 DISPLACEMENT GYRO HEATER	FAR 27-41002-821	460 810210	WTR	YES NO	YES KEARFOIT	994759
FAILURE MODE-FAILED DURING OPERATION. DURING CHECKOUT THE ROLL GYRO FINE HEATER CIRCUIT SENSING LINE VOLTAGE READ 113V AFTER 1 HOUR OF OPERATION. FAILURE WAS DUE TO A DAMAGED MAGNETIC AMPLIFIER CONTROL UNIT PROBABLY GROUNDING DURING TESTING.							
CORRECTIVE ACTION-NONE. CAUSE OF FAILURE NOT DETERMINED.							
AUTOPILOT-SQUARE-A/S FILTER AND SERVOAMP	AE80-0955/P3-503-00-08 V2 PITCH SERVO VALVE FUNCTIONAL IN STRIMENTATION	FLIGHT	8E 810124	13 11.3	YES NO		992467
FAILURE MODE-FAIL DURING OPERATION. AT 114.271 SECONDS AN ELECTRICAL LEAD ON THE VERNIER 2 ACTUATOR VALVE SHORTED TO GROUND DUE TO EXCESSIVE AERODYNAMIC HEATING.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNAL. THE SHORTED LEAD CAUSED A LOSS OF CURRENT TO THE V2 SERVO VALVE WHICH ALLOWED THE ENGINE TO DRIFT TO THE STOP IN THE PITCH PLANE. THE SHORT BURNED OUT THE OUTPUT TRANSISTOR OF THE SERVOAMPLIFIER APPROXIMATELY 46.6 SECONDS AFTER THE INITIAL SHORT.							
VEHICLE EFFECT-LOSS OF VEHICLE STABILITY. SHORTING OF THE SERVOVALVE CURRENT TO GROUND OVERHEATED AND SHORTED THE OUTPUT TRANSISTOR OF THE SERVOAMPLIFIER PERMITTING ALL ENGINES TO DRIFT TO THEIR STOPS CAUSING LOSS OF VEHICLE STABILITY AT 160.87 SECONDS.							
CORRECTIVE ACTION-INSTALLED CURRENT LIMITING RESISTORS IN VERNIER CIRCUITRY. ADDED PROTECTIVE COVER TO VERNIER ENVELOPE. REVISED VERNIER WIRING INSULATION TO COVER THE VERNIER VALVE AND CONNECTOR.							

GENERAL MANICS
CONVAIR DIVISION

15 JUN 1960

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	AES1-0010/PC-SC0-01-023 AMPLIFIER-CAPACITOR	COMPOSITE-FACTORY	23E 010108	FACTORY	YES NO	
<p>FAILURE MODE-ERRATIC OPERATION. SANSORN RECORDER CHANNEL 8 (SUSTAINER YAW) INDICATED A POSITIVE ENGINE OVERSHOOT OF APPROXIMATELY 3 VOLTS AT INTEGRATOR MULLING AND GAIN CHANGE. THIS CONDITION WAS CAUSED BY ONE OF THE TWO SERIES CAP ACTORS IN THE INTEGRATOR CIRCUIT.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE RE-SCHEDULED. POST-COMPOSITE TESTING REQUIRED.</p> <p>CORRECTIVE ACTION-A DESIGN CHANGE OF THE FILTER-SERVO PACKAGE WAS TO BE ACCOMPLISHED PRIOR TO LAUNCH TO CORRECT THE 8 CONDITION (ECF 1113, CIC 7248).</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	AES0-1083/PC-SC0-02-080 AMPLIFIER-CAPACITOR	COMPOSITE-FACTORY	20E 001827	FACTORY	YES NO	
<p>FAILURE MODE-ERRATIC OPERATION SUSTAINER YAW FEEDBACK INDICATED AN UNEXPECTED OVERSHOOT AT INTEGRATOR MULLING. BECA USE OF AN EXCESSIVE DELAY BETWEEN APPLICATION OF AIRBORNE POWER AND COMPOSITE START. AS A RESULT ONE OF THE TWO SERI ES CAPACTORS IN THE AIRBORNE FILTER-SERVO INTEGRATOR CIRCUIT WAS CHARGED, CAUSING THE OVERSHOOT UPON ITI DISCHARGE.</p> <p>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.</p> <p>VEHICLE EFFECT-COMPOSITE RESCHEDULED.</p> <p>CORRECTIVE ACTION-A POST COMPOSITE TEST WAS ACCOMPLISHED WITH THE INTEGRATORS CONDITIONED AND WAS SATISFACTORY. THE SERVO PACKAGE WAS SCHEDULED TO BE REPLACED PRIOR TO FLIGHT WITH ONE MODIFIED TO INCORPORATE A BLEED RESISTOR IN THE INTEGRATOR CIRCUIT.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-173 DISPLACEMENT GYRO BEARING	FAR 27-41002-837	601122	AMP	YES NO	YES KEA IPOTT
<p>FAILURE MODE-STRUCTURAL. DURING GYRO LAB TESTING THE GYRO WAS AUDIBLY NOISY. NOISE WAS DUE TO A DRY SPIN MOTOR BEAR ING.</p> <p>CORRECTIVE ACTION-WEAR TO REARPOTT TO IMPROVE GYRO BEARING CLEANING PROCEDURE TO ALLOW GREATER POROSITY IN BEARINGS PHENOLIC MATERIAL. 60/C RETROFITTED D AND E SERIES MISSILES WITH GYROS CONTAINING SPIN MOTOR SENSORS.</p>						
AUTOPLOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-136 AMPLIFIER	FAR 27-41000-813	601112	ETR	YES NO	YES 60/C
<p>FAILURE MODE-OUT OF TOLERANCE-DURING GYRO LAB TESTS VERNIER YAW READINGS AND MULL VOLTAGES WERE OUT OF TOLERANCE.</p>						

GENERAL DYNAMICS
CONVAIR DIVISION

11 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
							004174
	CORRECTIVE ACTION-UNKNOWN. CAUSE OF FAILURE COULD NOT BE DETERMINED.						
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	AE60-0748/P2-401-00-80 AUTOPILOT PITCH STABILIZATION FILT ER	FLIGHT	600 600925	12 15	YES NO	50/C	000099
FAILURE MODE-ERRATIC OPERATION-EXCESSIVE PITCH BENDING MODE OSCILLATION BEGAN TO BUILDUP IMMEDIATELY AFTER THE PITC HOVER PROGRAM WAS INITIATED AT 15 SECONDS. OUTPUT WAS 9.2 DEG PER SEC PEAK AT 25.6 CPS AT 20 SEC. FREQUENCY HAD INCREASED TO 23 CPS AT 37 SECONDS. THIS OSCILLATION DAMPED AFTER 40 SECONDS.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-8 CPS LAS SECTION OF STABILIZATION CHANGED TO 4.9 CPS LAS SECTION ON SQUARE AUTOPILOT ATLAS-ABLE VEHICLES. THIS WILL PROVIDE GREATER ATTENUATION IN THE RANGE OF THIS OSCILLATION.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	AE60-0359/PC-400-01-079 AMPLIFIER	COMPOSITE-FACTORY	790 600702		NO NO		000323
FAILURE MODE-FAIL DURING OPERATION. -ROLL GYRO BIASING AND MELLING WERE REDUCED.							
SYSTEM EFFECT-OPERATION TOO LOW.							
VEHICLE EFFECT-COUNTDOWN, COMPOSITE DELAYED OR RESCHEDULED. POST-COMPOSITE TESTING REQUIRED.							
CORRECTIVE ACTION-ROLL TORQUE AMPLIFIER (AGE) WAS FOUND TO HAVE LOW GAIN AND WAS REPLACED.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	AE60-0382/PC-500-02-03	COMPOSITE-FACTORY	3E 600813	FACTORY	YES NO		000487
FAILURE MODE-ERRATIC OPERATION- THE SANGORN RECORDER INDICATED AN UNEXPECTED SUSTAINER YAW ENGINE MOVEMENT OF 3 VOL TS MAXIMUM AMPLITUDE AT 121.85 SECONDS FOR A DURATION OF 0.9 SECOND. THIS CONDITION COULD NOT BE DUPLICATED DURING 8 UNBESUBT RESETTING AND WAS CONSIDERED ACCEPTABLE TO ENGINEERING PERSONNEL.							
SYSTEM EFFECT-ERRATIC OPERATION- UNEXPECTED SUSTAINER YAW MOVEMENT OCCURRED AT 121.85 SECONDS.							
VEHICLE EFFECT-COMPOSITE RESCHEDULED. POST COMPOSITE TESTS MADE TO DETERMINE CAUSE DID NOT SHOW ANY PROBLEM.							
CORRECTIVE ACTION-NONE.							

GENERAL AMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	98-04-104 SERVO AMPLIFIER CONNECTOR	FAR 27-41000-800			YES NO		097070
FAILURE MODE- FAIL TO CEASE OPERATION AT PRESCRIBED TIME. UNIT REMOVED FROM MISSILE BECAUSE ROLL SERVO AMPLIFIER IN DICATED AN OUTPUT WITH NO INPUT APPLIED. ROLL CHANNEL WAS ALSO INTERFERING INCORRECTLY. FAILURE CONFIRMED, BUT OPERA TION CORRECTED ITSELF.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	96-49-04-299F CIRCUIT BOARD LEASAS/CAPACITOR	FAR 27-45200-15	108D	FACTORY	NO NO		093910
FAILURE MODE-OUT OF SPECIFICATION. -THE LEASAS MODULE BOARD WAS SENSITIVE TO HEAT AND IT WAS UNSTABLE. VISUAL CHECK REVEALED THAT CAPACITOR C1 WAS INSTALLED IN REVERSE POLARITY. ANALYSIS REVEALED THAT TWO CAPACITORS WERE INSTALLED IN THE INPUT OF THE CIRCUIT BOARD IN THE REVERSE POLARITY. THE REVERSED POLARITY CAUSED CAPACITOR DETERIORATION AND THE INSTABILITY.							
CORRECTIVE ACTION-RAR 98-04-872 WAS INITIATED TO QUALITY CONTROL INSPECTION TO TAKE REMEDIAL ACTION IN THEIR AREA. INDIVIDUAL CORRECTIVE ACTION IS BEING TAKEN BY ISSUING AN AVO TO INSPECTORS MAKING REPETITIVE MISTAKES ON CORRECT IN STALLATION TECHNIQUES.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	4-9P-04-3540F AMPLIFIER	FAR 27-41000-931	100F	PAFB	YES NO		094707
FAILURE MODE-OUT OF TOLERANCE. MARCHE CHECKOUT SHOWED NC-603 ON VERNIER 2 YAW-ACTIVE-MULL AND ON VERNIER 2 ROLL-STA TIC-GAIN. THE FAILURE WAS CONFIRMED. THE SERVOAMPLIFIER-FILTER PACKAGE FAILURE IS DUE TO A POOR SOLDER CONNECTION BE TWEEN PIN 5 OF Y1 AND THE BASE OF Q3 IN THE VERNIER 2 YAW-PLUS-ROLL AMPLIFIER.							
CORRECTIVE ACTION-RAR-9P-04-3618 DATED DEC. 7, 1962 WAS WRITTEN REQUESTING THAT MANUFACTURING PERSONNEL BE INFORMED OF THE RESULTS OF THE ANALYSIS AND BY REQUESTING THAT THEY FOLLOW PROPER SOLDERING TECHNIQUES.							
AUTOPILOT-SQUARE-A/B FILTER AND SERVOAMP	9P-90-04-4287 AMPLIFIER, TRANSISTOR	FAR 27-41000-937	117D	NTR	YES 50/C NO		092911
FAILURE MODE- FAIL TO OPERATE. SUSTAINER ENGINE WOULD NOT WALL IN YAW DUE TO COLLECTOR TO EMITTER SHORT CIRCUITS IN TRANSISTORS Q3 AND Q5 OF THE SUSTAINER YAW AMPLIFIER. THE DAMAGE TO THE TRANSISTORS WAS PROBABLY CAUSED BY ACCIDENT ALLY SHORTING THE AMPLIFIER OUTPUT TO GROUND DURING TROUBLE SHOOTING. THE ACTUAL CAUSE WAS NOT LEARNED.							
CORRECTIVE ACTION-NONE.							

GENERAL DYNAMICS
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI JTH	VENDOR NAME VENDOR PART NO	
AUTOPILOT-SQUARE-A/B FILTER AND SERVOMP	N2-90-04-0330-F AMPLIFIER, RESISTOR	FAR 27-44533-3	2990	WTR	YES	RPC NO	090993
FAILURE MODE- FAIL DURING OPERATION. AUTOPILOT SERVOMP/AMPLIFIER FAILED DURING A LAUNCH COUNTDOWN LOOP TEST. IT WAS REPORTED THE BOOSTER 2 PITCH WAS 30 PERCENT LOW FOR 1.5 SECONDS, THEN RETURNED TO NORMAL. FAILURE CONFIRMED. FAILURE WAS CAUSED BY AN INTERMITTENT TYPE APTIOE RESISTOR MANUFACTURED BY RPC. ONE OF THE END TAB CONNECTIONS INSIDE THIS RESISTOR HAD NEVER BEEN SOLDERED.							
CORRECTIVE ACTION-NONE. AS RESULT OF THE MIL-R-83 REQUIREMENTS, THE RPC-TYPE APT 10E RESISTOR IS INACTIVE FOR DESIGN AND NO LONGER PROCURABLE.							
AUTOPILOT-SQUARE-A/B LOW FEED	99CE89A-2 AMPLIFIER, CAPACITOR	UTP-PRT	830126	FACTORY	YES	CORNELL-DUBILIT NO ER	090973
FAILURE MODE-ERRATIC OPERATION. DURING PRT Y-AXIS TEMPERATURE-VIBRATION, PITCH CHANNEL BECAME ERRATIC DUE TO V 3MAP ED TIN STRIP BREAKING ON BOTH ENDS OF CAPACITOR (106MFD) ON BOARD A441 CAUSING INTERMITTENT OPEN, RESULTING IN AN UNSTABLE AMPLIFIER. REFER TO FAILURE LOG NUMBER 599-3-003.							
CORRECTIVE ACTION-PARTS IMPROVEMENT ECP WILL BE SUBMITTED TO SSO FOR APPROVAL-ECP 3642 APPROVED.							
AUTOPILOT-SQUARE-A/B LOW FEED	FR-69A2698 CIRCUIT BOARD, DIODE	UTP-PRT 27-41793	840110	64/C	YES	GENERAL ELECTR NO IC	090973
FAILURE MODE-ERRATIC OPERATION. DURING PRT (SERUW) X-AXIS TEMPERATURE-VIBRATION, MINUS 60 VOC POWER SUPPLY BECAME ERRATIC DUE TO ANODE LEAD OF DIODE SEPARATING FROM POWER SUPPLY BOARD WEABAS (P/N 27-41793). REFER TO FRR 0829.							
CORRECTIVE ACTION-1N338 DIODES TO BE REPLACED WITH 1N340 DIODES (P/N 69-63118-1). ECP 7691 SUBMITTED TO REDESIGN POWER SUPPLY MODULE AND USE FOAM WAS APPROVED.							
AUTOPILOT-SQUARE-A/B LOW FEED	FR-69A2698 CIRCUIT BOARD, DIODE	UTP-PRT 27-41793	831211	60/C	YES	GENERAL ELECTR NO IC	090972
FAILURE MODE- ERRATIC OPERATION. DURING PRT X-AXIS TEMPERATURE-VIBRATION, MINUS 60 VOC POWER SUPPLY BECAME ERRATIC DUE TO ANODE LEAD OF DIODE SEPARATING FROM POWER SUPPLY BOARD WEABAS (P/N 27-41793). REFER TO FRR 0829.							
CORRECTIVE ACTION-1N338 DIODES TO BE REPLACED WITH 1N340 DIODES (P/N 69-63118-1). ECP 7691 SUBMITTED TO REDESIGN POWER SUPPLY MODULE AND USE FOAM WAS APPROVED.							

GENERAL ANICS
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-AUTOPILOT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI CTH	VENDOR NAME VENDOR PART NO

GENERAL MICS
CONVAIR DIVISION

10 JUN 1966

DIFFICULTIES REVIEW-AUTOPLOTT SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO